# FORENSIC PSYCHOLOGICAL TESTS AND HUMAN RIGHTS OF THE ACCUSED:

WITH SPECIAL REFERENCE TO RIGHT AGAINST SELF INCRIMINATION AND RIGHT TO FAIR TRIAL

*Thesis Submitted To*

**COCHIN UNIVERSITY OF SCIENCE AND TECHNOLOGY**

*For the award of the degree of*

**DOCTOR OF PHILOSOPHY**
**IN**
**THE FACULTY OF LAW**

*By*
**A.ANUSREE**

*Under the supervision of*
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**SCHOOL OF LEGAL STUDIES**
**COCHIN UNVERSITY OF SCIENCE AND TECHNOLOGY**
**KOCHI- 682 022, KERALA, INDIA**
**JANUARY 2018**

# Declaration

I declare that this thesis entitled **"Forensic Psychological Tests and Human Rights of the Accused: With Special Reference to Right Against Self Incrimination and Right to Fair Trial"** for the award of degree of Doctor of Philosophy in Law is the record of bonafide research work carried out by me under the guidance and supervision of Dr. V.S. Sebastian, former Director, School of Legal Studies, Cochin University of Science and Technology, Kerala. I further declare that this thesis or any part of this thesis has not been submitted by me in any other University for any degree or diploma whatsoever.

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(Research Scholar)

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## Cochin University of Science and Technology

## Kochi- 682 022, Kerala, India, January 2018

**Dr. V.S. Sebastian**
Former Dean and Former Director


# Certificate

This is to certify that the thesis entitled **"Forensic Psychological Tests and Human Rights of the Accused: With Special Reference to Right Against Self Incrimination and Right to Fair trial"** submitted by **Smt. A. Anusree** for the award of degree of Doctor of Philosophy in Law is the record of bonafide research work carried out by her as Part Time research scholar in the School of Legal Studies, Cochin University of Science and Technology, Kerala, under my guidance and supervision from 13-07-2009. This thesis or any part thereof has not been submitted by her in any other University for any degree or diploma whatsoever.

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This is to Certify that the important research findings in the thesis entitled **"Forensic Psychological Tests and Human Rights of the Accused: With Special Reference to Right Against Self Incrimination and Right to Fair Trial"** have been presented in a research seminar held at in the School of Legal Studies, Cochin University of Science and Technology on 23-08-2017.

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**Dr. V.S. Sebastian**
Former Dean and Former Director


## Certificate

This is to certify that the thesis entitled **"Forensic Psychological Tests and Human Rights of the Accused: With Special Reference to Right Against Self Incrimination and Right to Fair Trial"** submitted by **Smt. A. Anusree** for the award of degree of Doctor of Philosophy in Law is the record of bonafide research work carried out by her as Part Time research scholar in the School of Legal Studies, Cochin University of Science and Technology, Kerala, under my guidance and supervision from 13-07-2009. All the relevant corrections and modifications suggested by the audience during the pre submission seminar and recommended by the Doctoral Committee have been incorporated by **Smt. A. Anusree,** in this thesis.

**Dr. V.S Sebastian**
(Research Guide)

Place : Kochi
Date : 22-01-2018

# PREFACE

Any scientific invention when introduced in the human social system, whether it relates to hard science or soft science has undergone severe criticism, disagreement and non acceptance by the society. There will be reluctance among common man as well as intellectual experts to accept the new changes deviating from the year old system which they were hitherto followed. This objection will be more severe when the change sought to be introduced affects the life of people. Forensic Psychological Tests are not an exception to this rule. The so called development in the forensic psychology area suggest smooth investigation in collecting evidence brushing away the application of brutal third degree measures to adduce evidence, easy trial procedures because of scientific method of evidence collection and finally speedy dispensing of justice. It is in this context an effort to study the impact of modern Forensic Psychological Tests in criminal justice system, the infringement of human rights while adopting and applying the test to collect evidence, using the evidence as a tool for determination of guilt or innocence of the accused and also arriving at speedy conclusions gained importance. The researcher has made sincere efforts to find out the above by in depth study of books on the subject written by National and International authors, analysing the landmark judgments on the subject by national and foreign courts. Though the study is mainly doctrinal and analytical in nature, the researcher has also tried to gain knowledge by adopting various methods of data collection from field. The study has been made with reference to the right of the accused with special emphasis on right against self incrimination and right to fair trial.

This research work is not solely the product of the effort of an individual, but that of relentless support and sacrifices of many. Numerous sincere and dedicated persons have rendered support, suggestions and sacrifices which have enabled me to achieve the target. It is my solemn duty to acknowledge their nobility.

I would like to express my boundless gratitude and profound regards to my guide and Guru Dr. V. S Sebastian, Former Dean and Former Director of School of Legal Studies Cochin University of Science and Technology for all his support and

guidance without which this work would not have been completed. I remember with love and respect Dr. K. N. Chandrasekharan Pillai, the Great Teacher of School of Legal Studies, for his advice and blessings. I acknowledge with gratitude, the support and guidance given to me by my affectionate teachers, Dr. A. M. Varkey, Dr. D. Rajeev, Dr. N.S. Gopalakrishnan and Dr. N. S. Soman (Present Dean Faculty of Law), by giving valuable insight into the subject. I also express my gratitude to The Director of School of Legal Studies, Cochin University, Dr. P.S. Seema, and the faculty members, non-teaching staff and students of school of Legal studies, Cochin University for all their support and encouragement. I am indebted to the Librarian and staff of School of Legal Studies, Library, for their support and encouragement and also for providing with all literary and internet source of materials readily available for reference round the clock.

I would like to express my deep sense of appreciation and gratitude to the Librarian and staff of Central Library, CUSAT; Public Library Ernakulam; Law Library of Indian Law Institute, Delhi; Library of Indian Society of International Law, Delhi; Library at Institute of Criminology and Forensic Science, Rohini, Delhi; Library of Forensic Science Department, at Chennai ; Kerala University Library and Libraries of Government Law Colleges at Ernakulam, Thrissur and Thiruvanathapuram.

I also express my gratitude to the Directors of all the Forensic Science Laboratories in India and all the forensic scientists and psychologists for their valuable suggestions, encouragement and guidance. Special mention has to be made of The Director, Professor C. R. Mukundan, and faculty members of Gujarat Forensic Science University, Dr. B. Umadattan, AIMS, Kochi, Sri. Murali Krishana,( Forensic Scientist) Professor S.L. Vaya, Smt. Deepthi Puranik,( Forensic Psychologist), Sri. Bharathan,( Retired Assistant Director, FSL Chennai) and forensic psychologists in Directorate of Forensic Science, Gujarat and Central Forensic Science Laboratory, CBI, Delhi, for their support and guidance by giving deep insight into the research subject. I also express my sincere gratitude to the anaesthetist and neurologist in MAJ Hospital, Edapally, Kochi, for giving valuable information about my research topic.

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I also owe to the Principal, Faculty members, staff and students in Government Law College, Ernakulam for the support and encouragement given by them. I express my sincere gratitude to the Faculty members of Indian Law Institute, Delhi, Indian Society of International Law, Delhi and National University of Advanced Legal Studies, Kochi for their valuable intellectual support and encouragement. I remember with love and gratitude the support given by my friends Dr Bindu Mol. V. C, Dr. K Balakrishnan, Dr. V. R Jayadevan, Dr. Vani Kesari, Dr Aneesh Pillai, right from the beginning of the research work.

No list is complete. I acknowledge and owe for the unwavering support, enduring love and relentless scarifies made by my husband Sri. G. Subramony, FCA, and my children Abhirami and Krishnakanth for the completion of this work. I also acknowledge the love and support given by my in laws, siblings and all family members. This research work is the realisation of the dreams and aspirations of my father, Sri. M. Ananthakrishna Iyer. The boundless love and affection of my mother, Mrs. K. Kanthimathi, who had left this world while the research work was in progress, is the fuel behind the completion of this work.

**A.Anusree**

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# ***Abbreviations***

| | | |
|---|---|---|
| A.2d | : | Atlantic Reports 2d Series. |
| A .C. | : | Appeal Cases. |
| A Crim R | : | Australian Criminal Reports. |
| ACHPR | : | African Charter of Human and Peoples Rights. |
| ACHR | : | American Convention on Human Rights. |
| A.I.R. | : | All India Reporter. |
| All | : | Allahabad. |
| All E.R | : | All England Reporter. |
| All M R | : | All Maharashtra Law Reporter. |
| Am. Crim. L. Rev. | : | American Criminal Law review. |
| anr. | : | Another. |
| Ariz | : | Arizona. |
| Art. | : | Article. |
| BEOS Profiling | : | Brain Electrical Oscillation Signature Profiling. |
| Bom. | : | Bombay. |
| BPS | : | British Psychological Society. |
| C.C.C. | : | Canadian Criminal Cases. |
| Cal. Dist. Ct. App | : | California District Court of Appeals. |
| Cal.Rptr.2d | : | California Reporter, 2d Series. |
| Cal.Rptr | : | California Reporter. |
| CanLII | : | Canadian Legal Information Institute. |
| CAT | : | Convention Against Torture. |
| CAT Scan | : | Computed Axial Tomography scan. |
| Cal. | : | Calcutta. |
| Cal.App.2d | : | California Appellate Reports, 2d Series. |
| CBI | : | Central Bureau of Investigation. |
| CFSL | : | Central Forensic Science Laboratory. |
| Ch.D | : | Chancery Division. |
| CIA | : | Central Intelligence Agency. |
| Cir | : | Circuit Court. |
| CLR | : | Common Wealth Law Reports. |
| Cri. L.J. | : | Criminal Law Journal. |
| CVSA | : | Computerised Voice Stress Analyser. |

| | | |
|---|---|---|
| D | : | Doubtful Response. |
| D. Colo | : | District of Colorado. |
| DC Pa | : | District Court Pennsylvania. |
| D.D.C. | : | US District Court of District of Columbia. |
| DFS | : | Directorate of Forensic Science. |
| D.Kan | : | District Court of Kansas. |
| D.NM | : | District of New Mexico. |
| DNA | : | Deoxyribonucleic Acid. |
| dtd | : | Dated. |
| DoD | : | Department of Defence. |
| E.C. | : | European Community. |
| ECHR | : | European Convention on Human Rights. |
| ed. | : | editor. |
| edn. | : | edition. |
| eds | : | editors. |
| EEG | : | Electroencephalograph. |
| E.H.R.R | : | European Human Rights Report. |
| e.g. | : | Example. |
| EK | : | Experimental Knowledge. |
| E.R. | : | English Reports. |
| ERP | : | Event Related Potential. |
| *et.al.* | : | and others. |
| etc. | : | etcetera. |
| EWCA Crim | : | England and Wales Court of Appeals ( Criminal Division). |
| F ( Fed). | : | The Federal Reporter (USA). |
| F.2d | : | Federal Reporter 2d Series. |
| F.3d | : | Federal Reporter 3d Series. |
| F.B.I. | : | Federal Bureau of Investigation. |
| FSL | : | Forensic Science Laboratory. |
| F.Supp | : | Federal Supplement Reports. |
| Fla | : | Florida. |
| FMRI | : | Functional Magnetic Resonance Imaging. |
| FSS | : | Forensic Science Service. |
| Ga | : | Georgia. |
| GABA | : | Gamma Amino Butric Acid. |

| | | |
|---|---|---|
| G.L.R. | : | Gujarat Law Reporter. |
| GSR | : | Galvanic Skin Response. |
| Guj. | : | Gujarat. |
| HC | : | High Court. |
| HCA | : | High Court of Australia. |
| HL | : | House of Lords. |
| HRC | : | Human Rights Committee. |
| *Ibid* | : | In the same place. |
| ICC | : | International Criminal Court. |
| ICTR | : | International Criminal Tribunal for Rwanda. |
| ICTY | ; | International Criminal Tribunal for the Former Yugoslavia. |
| ICCPR | : | International Covenant on Civil and Political Rights. |
| ICESCR | : | International Covenant on Economic Social and Cultural Rights. |
| *id.* | *:* | Idem. |
| ILJ | : | Industrial Law Journal ( South Africa). |
| ILM | : | International Legal Materials. |
| IPC | : | Indian Penal Code. |
| IPT | : | Independent Project Trust. |
| J. | : | Judge. |
| JCC | : | Journal of Criminal Cases. |
| Kan | : | Kansas. |
| KB | : | Kings Bench. |
| K. L. J. | : | Kerala Law Journal. |
| K.L.T. | : | Kerala Law Times. |
| La | : | Louisiana. |
| Ltd. | : | Limited. |
| LVA | : | Layered Voice Analysis. |
| Mad. | : | Madras. |
| Mass. | : | Massachusetts. |
| MERMER | : | Memory and Encoding Related Multifaceted Electroencephalographic Response. |
| MHA | : | Ministry of Home Affairs. |
| Mich.App | : | Michigan Appeal. |

| | | |
|---|---|---|
| Mich. App | : | Michigan Appeals Reports. |
| NAS | : | National Academy of Sciences. |
| NCT | : | National Capital Territory. |
| N. E. 2d | : | North Eastern 2d Reports (US). |
| NICA | : | Court of Appeal in Northern Ireland. |
| NICC | : | Northern Ireland Crown Court. |
| N.M. | : | New Mexico. |
| NIMHANS | : | National Institute of Mental Health and Neuro Science. |
| NR | : | No Response. |
| NSA | : | National Security Agency. |
| NSWLR | : | New South Wales Law Reports. |
| N.W.2d | : | North Western 2d Reports (US). |
| N.Y. | : | New York. |
| N.Y.S.2d | : | New York Supplement Reports 2d Series. |
| NZLR | : | New Zealand Law Reports. |
| ODIHR | : | Office of Democracy Institutions and Human Rights. |
| OLC | : | Office of Legal Council. |
| OM | : | Office Memorandum. |
| ON SC | : | Ontario Superior Court of Justice. |
| Or. | : | Oregon (USA). |
| OSCE | : | Organization for Security and Co-operation in Europe. |
| OT | : | Operation Theatre. |
| p. | : | Page. |
| Pa | : | Pennsylvania Report.(US). |
| P.C. | : | Privy Council. |
| pp. | : | pages. |
| P.2d | : | Pacific.2d Reporter Series (US). |
| PET Scans | : | Positron Emission Tomography. |
| PSE | : | Psychological Stress Evaluator. |
| Pvt. | : | Private. |
| QBD | : | Queen’s Bench Division. |
| QCA | : | Queensland Court of Appeal. |
| Q EEG | : | Quantitative Electro Encephalograph. |
| R | : | Response. |
| r. | : | Rule. |

| | | |
|---|---|---|
| RCR (Crim) | : | Recent Criminal Reports. ( India). |
| s. | : | Section. |
| Ss. | : | Sections. |
| SAPS | : | South African Police Service. |
| SASR | : | South Australia State Reports. |
| S.C. | : | Supreme Court. |
| S.C.C. | : | Supreme Court Cases (India). |
| S.C. R | : | Supreme Court Reports.( Canada). |
| SCOLAG | : | Scottish Legal Action Group. |
| S.Ct | : | Supreme Court Reporter (US). |
| S.D.N.Y. | : | Southern District of New York. |
| So.2d | : | Southern Reports 2d Series.(US). |
| SPECT scans | : | Single Photon Emission Computed Tomography. |
| Supl. | : | Supplementary. |
| S.W.2d | : | South Western Reports 2d Series.(US). |
| Tenn | : | Tennessee. |
| TIFAC | : | Technology Information Forecasting & Assessment Council. |
| UDHR | : | Universal Declaration of Human Rights. |
| UN | : | United Nations. |
| UN Charter | : | United Nations Charter. |
| USA | : | United States of America. |
| UK | : | United Kingdom. |
| UOI | : | Union of India. |
| v. | : | Versus. |
| Vol. | : | Volume. |
| WASCA | : | Supreme Court of Western Australia- Court of Criminal Appeal. |
| W.D.N.C. | : | WD North Carolina.(US). |
| w.e.f. | : | With effect from. |
| W.L.R. | : | Weekly Law Reports. (UK). |
| www | : | World Wide Web. |
| W.Va | : | West Virgina. |

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# Chapter - I
# INTRODUCTION

The protection of human rights through control of crime has always been the primary responsibility of any state. The state ensures human rights of its subjects through effective criminal justice system. However the concept of crime is not static in nature. The nature of crime has been changing and diversifying with the advancement of science and technology. In this era of information technology, serious crimes like smuggling, drug trafficking, international frauds, forgeries, terrorism and cybercrimes have acquired global proportions. Today, crimes are committed in such an intelligent and well planned manner that a person could commit crime by sitting countries away. But the present day system of criminal investigation and prosecution in India is not keeping pace with it. The situation now demands that the law enforcement should keep in pace with the advances in science and technology and should no longer rely on outmoded techniques of interrogation and detection of crime. It is true that collection of evidence is an arduous task, as at most times, investigating agencies have to obtain information from various sources. Since olden times, several methods have been used to elicit truth from the suspects and most of these methods were based on physical coercion including torture which is not considered as desirable in this era of human rights by any civilized country. It is at this juncture, scientific tests based on psychological knowledge assume significance.

Investigators had been utilising psychological knowledge in the collection of evidence in the past also, though in a primitive way.[1] It was ordinarily based on bodily signs due to psychosomatic interaction to create emotions like fear, anger, greed, happiness etc., in the subject under interrogation.[2] The body signs which they mainly studied were facial changes, perspiration rate, shifting of eyes, scratching on the body etc.[3] In recent times, the experts are utilising the invisible psychosomatic

1. B.R. Sharma, *Forensic Science in Criminal Investigations and Trials*, Universal Law Publishing Company, New Delhi, (4th edn., 2005), p.184.
2. *id*. at p.185.
3. *ibid*. Even today some of these bodily signs are important.

subtle changes in the body of the subject like blood pressure, respiration rate, pulse rate, electrical skin resistance, subsonic vibrations of the vocal cord and brain activity. [4] These psychosomatic subtle changes are utilised extensively in the interrogation of subjects through various modes like Polygraph or Lie Detector, Psychological Stress Evaluator, Brain Fingerprinting, Truth Serum etc.[5] These tests are mainly noninvasive in nature and has no detrimental impact on the physical health of the person who is subjected to these tests. These tests also help in the ascertainment of truth without resorting to third degree measures.

When any new scientific test is assimilated in the legal system, several issues crop up. [6] One among them is whether the existing legal system is ready to accommodate these new scientific tests? Secondly, how could these scientific techniques benefit the legal system? Thirdly, with the rapid pace in which the

4. *ibid.*
5. *ibid*. In the case of truth serum, hypnosis etc., brain activity is involved. It is the brain which invents false answers through its reasoning, if this could be stopped, truthful answers could be obtained.
6. Many questions may arise like whether the information is deciphered through scientific methods, whether the scientific evidence has been published in peer reviewed journals, tested by other scientists and generally accepted by scientific community. Some scientific theories are so well established that judges may routinely admit it at trial without requiring proof that they are reliable. But in science, techniques and technologies are constantly subjected to change. There is no guarantee that all scientific claims accepted as true at any point of time are true and some may eventually turn out as only "truths." ie Scientific conclusions are subject to perpetual revision. So it is important that legal system must remain vigilant as to unintended consequences. With respect to new scientific developments the problem is that, no one knows for certain whether the evidence is reliable. Hence, decision on the basis of scientific evidence without proper evaluation will cause inconsistent verdicts which will result in miscarriage of justice. The issues of junk science and pseudo experts (who claim to have a scientific basis, though they do not have) may also crop up. Apart from these, the difference in the culture of science and law may also invite many disputes. For instance, the legal system focuses specifically to a particular case, the question which the system wants an answer would rarely be the exact question on which the scientific community focus. Apart from these, 'science 'itself is enormously complex concept and is uneven both in character and in quality. Moreover scientific enterprise, which relies for its resources upon the society, is vulnerable to pressures to confirm to commercial, ideological etc. and hence values are at odds. Against this background legal system has many difficulties in dealing with science. Thus the match between law and science seems to be made in heaven. But in this progressive age, assimilation of scientific developments in legal system is just like standing in the sea shore and asking the waves of sea not to come. For discussion See, Susan Haack, "Of Truth, in Science and in Law," Vol. 73 (3), Brooklyn Law Review, January 2008, pp.985-1008. See also, National Research Council, *The Age of Expert Testimony: Science in the Court Room, Report of a Workshop*, National Academy Press, Washington,(2002),available at https://www.nap.edu/ download/10272# (accessed on 10/11/2017). See also, Margaret A. Berger and Lawrence M. Solan, "The Uneasy Relationship Between Science and Law: An Essay and Introduction," Vol. 73(3), Brooklyn Law Review, January 2008, pp.847-855 at p. 848.

scientific developments take place, whether laws in the present form are really able to deliver justice efficiently or whether enactment of new laws or amendments to the existing laws is required? The object of the present study is to evaluate whether assimilation of these scientific tests in criminal justice system in India would affect the human rights of the accused.

Criminal Justice system has two main objectives. One of the objectives is maintenance of law and order by preventing and deterring crime. The other objective is to protect human rights by proper investigation of crimes and successful prosecution of offenders by ensuring proper treatment of the accused. This means that, though criminal justice system has its objective to bring to justice those who are responsible for crimes, the system itself would lose its credibility, when people are ill-treated by law enforcement officers, when trials are manifestly unfair and also when procedures are tainted with discrimination. Thus, unless human rights of the accused are adequately protected during pretrial, trial and post-trial stage, the state will be failing in its duty as the protector of human rights. Accused is always under the coercive power of the state. It is because of this disadvantaged position, all the civilised countries grant certain rights to him. Just because a person happened to be an accused, he cannot be denied basic rights as a human being. The evolution of rights of accused could be traced from the evolution of the concept of human rights.

## 1.1 International Conventions and Human Rights of the Accused

Human right is a right inherent in every human being by virtue of his birth as a member in the human family. The present rights of the accused could be traced even to *Vedic* times[7] and is found expression in *Magna Carta,*[8] in Bill of Rights in 1689,[9] political documents rooted in the tradition of Virginia Bill of Rights,[10] the

7. 6th and 7th Century. Human rights are found expression in the Dharma concept. Dharma means justice or righteous conduct. It lays down a code of conduct covering every aspect of human behaviour. Justice Rama Jois, *Legal and Constitutional History of India: Ancient Legal, Constitutional and Judicial System*, Universal Law Publishing Company, Delhi, (1st edn., 2010), p.9.
8. Art. 21 of the Constitution of India, 1950, recognises right to life and personal liberty. Dr. Ashutosh, *Rights of Accused*, Universal Law Publishing Company, Delhi, (2009), p.272.
9. The Bill of Rights, 1689, is enacted in a parliamentary statute. It is a declaration the people made and required the Prince of Orange to subscribe at their accession in 1688 and this contributed to the development of Fundamental Rights. See *ibid.*
10. 1776. This was the first declaration of rights in a written constitution as the basis and foundation of Government. The rights asserted includes right against general warrant, self-incrimination, cruel punishment etc.

American Declaration of Independence,[11] American Bill of Rights[12] and the French Declaration of Rights of Man.[13] The concept of Human Rights of the accused gained momentum after the two world wars, especially after the birth of United Nations. UN Charter[14] reaffirmed its faith in fundamental human rights and UN Declaration proclaimed in unequivocal terms "universal respect for the observance of Human Rights for all without distinction as to race, language, sex or religion."[15] Thus, after the coming into force of UN Charter and UN Declaration of Human Rights, a constitutional basis for the right of the accused emanated. Apart from the Charter and Universal Declaration of Human Rights, rights of the accused are also found expression in International Covenant on Civil and Political Rights, 1966,[16] International Covenant on Economic Social and Cultural Rights, 1966[17] and other Human rights instruments.[18] The cumulative effect of these international human

11. The theory of natural rights entered into realm of constitutional realism with two revolutionary documents; American Declaration of Independence and French Declaration which asserted that there were certain alienable rights and it is the duty of the state and its organ to maintain these rights. See *supra* n.8 at p.277.
12. There was no Bill of Rights appended to the original constitution.
13. French Declaration of Rights of Man, 1791, was inspired by American Declaration of Independence, 1776.
14. UN Charter 1945 was signed in San Francisco on 26 June 1945 at the conclusion of the United Nations Conference on International Organisation. It came into force on 24 October 1945.
15. Herein after referred to as UDHR. The preamble of UDHR, 1948 recognises inherent dignity of human being and of equal and inalienable rights of all members of human family as foundation of freedom, justice and peace in the world.
16. Herein after referred to as ICCPR.
17. Herein after referred to as ICESCR.
18. The main International Conventions that are relevant with respect to rights of the accused are apart from UDHR, ICCPR, ICESCR are The United Nations Standard Minimum Rules for the Treatment of Prisoners, 1955; The Body of Principles for Protection of All Persons under any Form of Detention or Imprisonment, 1988; The Declaration on Protection of All Persons From Being Subjected to Torture and Other Cruel, Inhuman or Degrading Treatment or Punishment, 1975; The Convention Against Torture and Other Cruel, Inhuman and Degrading Treatment and Punishment,1984;The Principles of Medical Ethics Relevant to the Role of Health Personnel, Particularly Physicians in the Protection of Prisoners, Detainees against Torture and Other Cruel, Inhuman or Degrading Treatment or Punishment 1982; The Code of Conduct for Law Enforcement Officials, 1979; The Basic Principles on Role of Lawyers, 1990;The Guidelines on Role of Prosecutors, 1990; UN Standard Minimum rules for Non-Custodial Measures (Tokyo Rules), 1990; UN Standard Minimum Rules for Administration of Juvenile Justice 1985; The Basic principles and Guidelines on the Right to a Remedy and Reparation for Victims of Gross Violations of International Human Rights Law and Serious Violations of International Humanitarian Law, 2005; UN Convention Against Transnational Organized Crime 2000, Vienna Declaration on Crime and Justice 1993; The Basic Principles on the Independence of Judiciary 1985; Declaration on the Protection of All Persons from Enforced Disappearance, 1992; The Convention on the Rights of the Child,1989, (though not directly related to criminal justice administration, also contains fair trial guarantees for children accused of having infringed penal law). There are also Rules of Procedure of International Criminal Tribunal of Former Yugoslavia, 1991, International Criminal Tribunal of Rwanda, 1994, Statute of International Criminal Tribunal, 2002. Apart from these, regional treaty standards which are developed by

rights instruments is that accused also becomes entitled to basic human rights like right to be treated with dignity and in a humane manner, right to privacy, right to legal aid etc.

## 1.2 Application of Human Rights Norms Relating to Accused's Rights in Indian Settings

The human rights norms relating to the accused are binding on all member states and it is the obligation of the member states, to comply with these standards in the criminal justice administration within their jurisdiction. India being a party to both ICCPR, ICESCR and also to certain international Human rights instruments, is bound to respect and implement the human rights standards set by those instruments by virtue of Vienna convention,[19] *Vishaka*[20] decision and also by virtue of Articles 51(C), 246, 253 read with entry 14 of the List I of the seventh schedule of the Constitution.[21]

Moreover, the term "human rights" as defined under Sec2(1) (d) of Protection of Human rights Act, 1993,means the rights relating to life, liberty, equality and dignity of the individual guaranteed by the Constitution or embodied in the International Covenants and enforceable by the courts in India. So all Fundamental Rights in Part III and also all human rights recognised by the international covenants would come within the ambit of human rights in India. Thus right to life, liberty and security of persons guaranteed in international conventions is enforceable as Fundamental Right under Article 21 of the Constitution. It is pertinent to note that, in Indian scenario, the human rights relevant to the rights of the accused derive substance from the Constitution.

regional intergovernmental bodies like organisation of African Unity, the Organization of American States, the Council of Europe and also Arab Charter of Human Rights are there.

19. The Vienna Convention on Law of Treaties, 1980, Art. 18. India is bound to refrain from those conducts which would defeat the very objects of the convention.
20. *Vishakha* v. *State of Rajasthan,* (1997) 6 S.C.C. 241,301. The Court held that international human rights norms not inconsistent with domestic law are part of law of the land.
21. Art. 51(c) of the Constitution provide for fostering respect for international law and treaty obligations in dealing with organised people with one another. Art. 246 deals with subject matter of Laws made by parliament and State Legislature. According to Art. 253, Parliament is empowered to make laws for giving effect to international agreements. Entry 14 List I deal with entering into treaties, agreements with foreign countries and implementing the same.

The accused is entitled fair investigation and fair trial which is the basic fundamental canon of criminal justice system in India and is in conformity with the constitutional mandate under Articles 20, 21 and 22 of the Constitution. Article 12 provides that Fundamental rights are available against the state which includes legislature, executive, local and other authorities. This forms the foundation of Indian criminal justice administration whereby the state and its organs are obliged to respect, protect and fulfill these rights of the citizen. It is also pertinent to note that state is restricted to make any law which takes away fundamental rights.[22] Thus the basic rights of the accused are so fundamental, that it cannot be violated. The Constitution also provides for the enforcement of Fundamental Rights by approaching higher judiciary in case of violation of the rights.[23] Apart from constitutional protection, statutory protections are also available to the accused under The Criminal Procedure Code, 1973 and The Indian Evidence Act, 1872.[24]

22. The Constitution of India, 1950, Art. 13(2).
23. The constitutional protections guaranteed under Articles 32 and 226 would entitle a person to judicial intervention in the case of illegal detention, arrest on unlawful grounds etc. A person can also avail the remedy under inherent jurisdiction of the High Court under s. 482 of The Criminal Procedure Code 1973.
24. Protection against arbitrary arrest and detention is provided in Ss. 41,50,55,75 and 151 of The Code of Criminal Procedure, 1973; Protection against unlawful search and seizure is provided in Ss. 93,94,97,100, 165 of The Criminal Procedure Code, 1973 ; Right to be informed of the grounds of the arrest is provided in Ss. 50,55 and 75 of The Code of Criminal Procedure, 1973; Right of the arrested person not to be subjected to unnecessary restraint is provided in s. 49 of The Code of Criminal Procedure, 1973 ; Right to consult and defended by legal practitioner of his choice and right to legal aid is provided in Ss. 303,304 of The Code of Criminal Procedure, 1973; Right to be produced before the magistrate within 24 hours of arrest is provided in Ss. 57 and 76 of The Code of Criminal Procedure, 1973; Right to bail is provided in Ss. 436, 437, 438 , 50(2) and 176 of The Code of Criminal Procedure, 1973; Right to get presumption of innocence till guilt is proved beyond reasonable doubt is provided in Ss. 101-104 of The Indian Evidence Act, 1872; Right to get copies of documents and statements of witnesses which is relied on by prosecution is provided in Ss. 173(7), 207, 208, 238 of The Code of Criminal Procedure, 1973; Right to have due notice of the charges is provided in Ss. 218, 228(2), 240(2) of The Code of Criminal Procedure, 1973; Right to take evidence in the presence of the accused is provided in Ss. 273, 317 of The Code of Criminal Procedure, 1973 ; Right to cross examination is provided in s.138 of Indian Evidence Act,1872; Right to have opportunity for explaining the circumstances appearing in evidence against him at trial is provided in s.313 of The Code of Criminal Procedure, 1973; Right to medical examination is provided in s. 54 of The Code of Criminal Procedure, 1973; Right to produce the defence witness is provided in s. 243 of Code of Criminal Procedure, 1973; Right to be tried by an impartial and independent tribunal is provided in Ss. 479, 327, 191 of The Code of Criminal Procedure, 1973 etc ; Right to fair and speedy investigation and trial s. 309 of The Code of Criminal Procedure 1973; Right to invoke inherent jurisdiction is provided in s.482 of The Code of Criminal Procedure 1973.

Judiciary has also broadened the ambit of life and personal liberty in Article 21 of the Constitution. After *Maneka* decision,[25] due process requirements of procedural fairness, justness and reasonableness are weaved into Article 21. Thus several rights like right to speedy trial,[26] right to legal aid,[27] right against handcuffing,[28] right against inhuman treatment,[29] right to medical aid[30] etc., which are the essence of criminal justice administration were read into Article 21. The accused was guaranteed right against unwarranted investigation and right to fair trial by virtue of many of these decisions.[31]

## 1.3 Balanced Concept of Human Rights

The basic human rights guaranteed by the Constitution to its citizens without any discrimination as to caste, religion, race, place of birth or any of them imposes a basic limitation on the use of authority and discretion by the executive agencies of the criminal justice system. It is also important to note that while liberties of citizens are recognized, the imperatives of security, unity and integrity of the nation are given predominance. The Constitution permits state which includes police as well as magistracy to impose reasonable restrictions on the Fundamental Rights of the people to maintain public order, security of state, decency, morality etc. The Indian judiciary also plays a positive role in the administration of criminal justice by judiciously resolving the tension between law enforcement and civil liberties of the citizens of India.

25 . *Maneka Gandhi* v. *Union of India,* A.I.R. 1978 S.C.597.
26. *Hussainara Khatoon ( No.1)* v. *Home Secretary, State of Bihar,* A.I.R.1979 S.C. 1360; *Kadra Pahadiya* v. *State of Bihar,* A.I.R.1982 S.C. 1167.
27. *Madhav. Hayawadanrao. Haskot* v. *State of Maharashtra,* A.I.R.1978 S.C. 1548; *State of Maharashtra* v. *Manubhai Pragaji Vashi, (*1995) 5 S.C.C. 730.
28. *Premshankar* v. *Delhi Administration,* A.I.R.1980 S.C.1535; *Citizen for Democracy* v. *State of Assam,* (1995) 3 S.C.C. 743.
29. *Kishore Singh* v. *State of Rajasthan,* A.I.R. 1981 S.C. 625; *Sheela Barse* v. *State of Maharashtra,* (1983) 2 S.C.C. 96.
30. *Paramananda Katara* v. *Union of India,* A.I.R. 1989 S.C. 2039; *Pashim Bang Khet Mazdoor Samiti* v. *State of West Bengal,* (1996) 4 S.C.C. 37; *Sheela Barse* v. *State of Maharashtra,* (1983) 2 S.C.C. 96.
31. *D.K. Basu* v. *State of West Bengal,* (1997) 1 S.C.C. 416; *Joginder Kumar* v. *State,* 1994 Cr. L. J. 1981 (S.C.) etc.

This balanced concept is also evident in the nature of these rights in the International Conventions. It could be seen that the rights enumerated therein may be classified into three categories;[32] absolute / non derogable rights, strong rights and qualified rights. Absolute / non derogable rights, are those which must be respected at all times and may not be restricted even for compelling reasons. However the scope and ambit of these rights are determined by judiciary, in that sense, they are not absolute.[33]

Qualified rights are declared rights, but they can be interfered on certain grounds to the minimum extent possible. Lying between these two categories is the strong rights which are less easy to label and assess. Their strength is not as qualified as the qualified rights, but is less fundamental than non derogable rights. The arguments for curtailing strong rights must be more powerful than those kinds of arguments which are needed to establish the acceptability of interference of qualified rights. Thus, no right is inviolable.[34]

Apart from that, there is always an element of indeterminacy in international human rights instruments.[35] This is often regarded as merit, as it is capable of flexibility with changing social conditions.[36] Though in the present scenario, more importance is given to the rights of the victim, it is also not absolute and is subject to rights of the accused.[37] Similarly, rights of the accused/ suspect are also not absolute and are subject to protection of rights of other parties in criminal justice system including public interest. Public interest also encompasses in it right of the accused,

32. Andrew Ashworth, *Human Rights, Serious Crime and Criminal Procedure*, The Hamlyn Lectures, Fifty-Third Series, Sweet and Maxwell, London, (2002), pp.74-76.The author states this with respect to European Convention on Human Rights. However it is applicable to other international conventions also. He puts right to life, right against torture etc. under absolute rights, right against self-incrimination etc. under strong rights and rights like privacy, freedom of speech and expression etc., under qualified rights.
33. *id*. at p.75.
34. *id*. at p.76.
35 . *id.* at p.74.
36. Common Wealth Human Rights Initiative, *Fair Trial Manual: Hand Book for Judges and Magistrates*, CHRI Head Quarters, New Delhi, (2010), p.6, available at. http://www.humanrights initiative.org/publications/police/fair_trial_manual.pdf (accessed on 21/06/2013).
37. Principle 6(b) of The Declaration of Basic principles of Justice for Victims of Crime and Abuse of Power, 1985, provides that "The views and concerns of victims to be presented and considered at appropriate stages of proceedings where their interests are affected without prejudice to the accused."

victim and public at large. Thus Fairness in criminal justice process is to be allocated to the individual as well as at the collective level.[38] This could be achieved only by strengthening the means of crime detection and prosecution by assimilating forensic science techniques in criminal justice system.

## 1.4 Forensic Science: Meaning and Scope

The term "forensic" means legal or related to court. Forensic science is the application of broad spectrum of sciences and technologies used for the application of law or appertaining to courts. As far as criminal justice is concerned, forensic science answers three important questions.[39] (i) Has a crime been committed? (ii) How and when was the crime committed? (iii) Who has committed the crime?. Further, forensic science contributes to the criminal justice system in many ways like, providing a lead in the investigation, helping in the ascertainment of truth, strengthening the weak chain of evidence or providing a missing link in the chain of evidence.

The evolution of forensic science could be traced to the 'Eureka' legend of Archimedes.[40] The seventh century had witnessed the use of finger prints to establish the identity of persons. Eventually, other areas like use of medicine and entomology to solve criminal cases, analyzing poison by chemical test, development of Anthropometry, invention of blood grouping, ballistics, document examination etc., were developed.[41] After the World Wars I and II, chains of Forensic Science Laboratories[42] were established in different countries around the world and at present there are more than 1100 FSL's all over the world.[43]

When we look into the organisation, structure and functions of forensic science institutions in any country, it seems that a Forensic Science Laboratory

38. Laura Hoyana, "What is Balanced on the Scale of Justice? In Search of the Essence of Right to Fair Trial," Vol. 17(1), The Criminal Law Review, January 2014, pp.4-29 at p.24.
39. *supra* n. 1 at p.12.
40. 287-212 BC. Satyendra. K. Kaul and Mbohd.H. Zaidi, *Narco Analysis, Brain Mapping, Hypnosis and Lie Detector Tests in Interrogation of Suspect*, Alia Law Agency, Allahabad, (2009), p.10.
41. *id.* at p.12. Also see, *supra* n. 1 at p.15. Anthropometry is scientific study of the measurement and proportions of human body. It is used for identification purpose.
42. Herein after referred as FSL's.
43. *supra* n. 40 at p.12.

which is the main forensic science institution may have various scientific departments or divisions. They are chemistry, physics, biology, ballistics, explosives, toxicology, narcotics, serology, DNA profiling, forensic psychology, voice analysis, photography, computers and scene of crime. Thus forensic science covers vast area and its application in criminal justice administration is also wider. Forensic psychology is one such area that comes under forensic science. The present study is confined to the area of forensic psychology.

## 1.5 Definition, Meaning, Classification and Development of Forensic Psychology

A perusal of the available literature shows that, it is difficult to give precise definition to forensic psychology.[44] Brigham points out that the literature on the subject adopts two different definitions. In some literature forensic psychology is defined broadly as the *research* and *application* of psychological knowledge to the legal system. Some other literature prefers narrow definition, which limits forensic psychology to the *application* and *practice* of psychology pertaining to the legal system. Bartol and Bartol had adopted both the views. They define Forensic psychology as; (i) Research endeavor that examines aspects of human behaviour directly related to the legal process and (ii) The professional practice of psychology within, or in consultation with a legal system that which embraces both civil and criminal law.[45]

The definition of "forensic psychology" as derived from the Specialty Guidelines for Forensic Psychologists, means all forms of professional psychological conduct when acting with definable foreknowledge, as a psychological expert on explicitly psycho legal issues, in direct assistance to courts, parties to legal proceedings, correctional and forensic mental health facilities, and administrative, judicial, and legislative agencies acting in an adjudicative capacity.[46] Thus presently, the field of forensic psychology is very wide and is divided into five branches. They

44. *supra* n. 1.The American Board of Forensic Psychology has defined Forensic psychology as the application of science and profession of psychology in relation to questions and issues to law and legal systems.
45. *supra* n. 40 at p.57.
46. See, Speciality Guidelines for Forensic Psychologists, American Psychology Association, 2013.

are legal psychology, criminal psychology or psychology of crime and delinquency, correctional psychology, police psychology, victimology and victim services.[47]

Legal psychology deals with the development of deception detection tests, acceptance of psychological expert testimony in the court room, development of cognitive and personality assessments and its application, specifically relating to juvenile courts.[48] Correctional psychology shows how psychological services are provided in correctional settings for both classification and treatment of offenders.[49] Police psychology deals with utility of psychological services in selecting candidate for police department, identification and treatment of stress and other emotional reactions which are experienced by police officers, and their family.[50] Criminal psychology focuses on psychological perspectives on criminal behaviour and speculates about the causes of crime.[51]

Since 1970, forensic psychology[52] has emerged as a matured branch rich in literature and research.[53] American Psychology Association has in 2001 recognized forensic psychology as a specialty. Specialty guidelines were adopted by the association in 1991 and 2013 and are followed in many countries. The object of the specialty guidelines is to improve the quality of forensic psychological services by giving guidance to the professionals delivering services to the courts and also in correctional settings. Since later part of twentieth century, forensic psychology has witnessed rapid advancement in USA, Europe, Australia and other parts in the world.

47. In Victimology and victim services, Forensic psychologists, assist to evaluate and treat persons who are victims and witnesses of crimes, conduct psychological assessments for personal injury matters relating to vehicle accidents, sexual harassments, medical negligence etc.; educate victim service providers on psychological reactions to crime victimisation etc.
48. *supra* n. 40 at p.69.
49. *ibid.*
50. *ibid.*
51. *ibid.*
52. Historical evolution began with late 19th Century and early 20th century. See for detailed discussion, Curt R. Bartol and Anne M. Bartol, "History of Forensic Psychology," in I. B. Weiner and A. K. Hess, *Handbook of Forensic Psychology*, Wiley series on personality processes, Oxford, England, (1987), pp. 3-21, available at http://cirpstudents.com/ Research%20Library/ assets/history-of-forensic-psychology.pdf (accessed on 31/08/2017). See also, Criminal Justice Research, "History of Forensic Psychology," available at http://criminal-justice.ir esearchnet.com/forensic-psychology/history-of-forensic-psychology/( accessed on 15/09/2017).
53. Victimology and crime and delinquency are research oriented whereas police psychology, legal psychology and correctional psychology are applied branches of psychology.

## 1.6 Significance of Forensic Psychology in Criminal Justice System

In the present scenario, Forensic psychology has become indispensible in criminal justice administration. Though forensic psychology has immense application in pretrial, trial and post-trial stages, its main contribution is in pre-trial investigation stage. In criminal justice administration, Forensic psychology is useful in many ways. It helps to determine whether a person is capable of undergoing the trial, assist the court to decide whether the person undergoing the trial should be treated as an adult or as juvenile or sane or insane. It also helps to decide as to the suitability and quantum of punishment or as to alternatives to punishment.[54] In Investigation it could be extensively utilised in developing the profile of a criminal, to ascertain whether a particular person is a drug addict and also to cure them and bring them back to normalcy.[55] Forensic psychology is also used in training and in evaluating law enforcement personals. Forensic psychologists also provide service by appearing as expert witness in courts. It is most importantly used in the interrogations of the suspects, victims and witnesses for the ascertainment of truth about the occurrence and background information about the crime.[56] Thus, in this modern world, where criminals are resorting to modern scientific techniques to commit crimes leaving no trace evidence, forensic psychology is the only solace.[57]

Main contribution of forensic psychology is the development of objective tests like Polygraph, Narco Analysis, Layered Voice Analysis,[58] Brain Electrical Oscillation signature profiling Tests[59] etc., for the ascertainment of truth during interrogation. Though in general parlance, forensic psychology has developed many tests of different nature and are being utilised in legal system, the present study is confined to an area of legal psychology which deals with forensic psychological methods in truth verification. Forensic psychology division of Forensic Science

54. *ibid* and see also, Anusree. A, "Forensic Psychology Tests in Criminal Investigation: Need for a Comprehensive Legislation," Vol.1 (3), International Journal for Research in Law, April 2016, pp.174-193 at p.174.
55. *ibid.*
56. *supra* n.1 at p.185.
57. *supra* n. 40 at p. 69.
58. Here after referred as LVA.
59. Here after referred as BEOS Test.

Laboratories in India conduct various tests based on these methods. For the purpose of present study, the objective scientific tests based on psychological knowledge, aiding investigation, which are conducted in the forensic psychology division of Forensic Science Laboratories in India are designated as Forensic Psychological Tests.

Presently the main Forensic Psychological Tests conducted in the forensic psychology division in FSL's are Polygraph, Narco Analysis, BEOS, Layered Voice Analysis, Statement Analysis, [60] Forensic Hypnosis, Psychological Autopsy, [61] Forensic Psychological Assessment[62] and Suspect Detection System.[63] These tests are effective and they have direct impact on efficiency in investigation and fairness in criminal trial. These tests are based on scientific methods and are generally physically noninvasive. Hence they do not cause any physical harm. Some of these tests may be done even without the knowledge of the persons who are subjected to it.

It is always argued that these tests help in the ascertainment of truth, which is the hallmark of criminal justice system. They help to determine the veracity of the statements made by the persons who are subjected to the tests. They occupy a vital

60. The aim of Forensic Statement Analysis is to infer the characteristics behaviour of the maker of the statement. It may be either written form or recorded communication. The test focuses on analysing the words in the statement and their interrelationships. The basic premise is that the structure and contents of the subject's statement reveal whether there is an attempt at deception. This is a technique which is used as a tool to investigate the psychology behind the crime scene. S.L. Vaya, *Project Report Submitted to the Chief Forensic Scientist, Directorate of Forensic Science, Ministry of Home Affairs, New Delhi*, National Resource Centre for Forensic Psychology, Gujarat, (2nd edn., 2013), p.55.

61 . Psychological Autopsy is applied in the case of equivocal deaths. Equivocal death means it is not sure whether the person has committed suicide or not. It is the method of collecting all available information about the deceased through structured interviews of family members, friends, attending health care professionals etc., to find out the reason for his suicide. James L. Knoll, "The Psychological Autopsy, Part I: Applications and Methods," Vol. 14(6), Journal of Psychiatric Practice, November 2008, pp. 393-397 at p.393.

62. Psychological Assessment is an invaluable and inestimable tool to understand the individual uniqueness. It uses in depth interviews and comprehensive battery of well researched and standardised tests with highly reliable, valid and reproducible results. Thus a complex picture of an individual emerges. This assessment helps to explain the connection between psychological functioning and behaviour. *supra* n.60 at p.45.

63. This test is conducted in Forensic psychology wing in Directorate of Forensic Science, Gujarat. This is a portable instrument and is conducted based on guilty knowledge test. It is used for screening and investigation. Based on the information collected by the researcher by personal visit to the laboratory. See also, Sarfaraz Sheikh, "Police Apply for Suspect Detection Test for Cop Killer Manish Balai," The Times of India, Ahmadabad, May 26, 2016, available at https://timesofindia.indiatimes.com/city/ahmedabad/Police-apply-for-suspect-detection-test-for-cop-killer-Manish-Balai/articleshow/52449732.cms (accessed on 14/11/2017).

role in criminal justice system as they act as an important aid in the proper detection and prosecution of criminals, without resorting to third degree measures. The tests are used to interpret the behaviour of the suspect, witnesses and victim and also to corroborate the investigating officers' observations. It is also asserted that these improvements in fact[64] finding during investigation stage would help to exonerate the innocent and the prosecution of guilty. These tests help in making circumstantial evidence more reliable and also help to corroborate with other evidence if admitted in trial.

The research studies in this area are also booming. In India, Gujarat Forensic Science University has started research in merging eye tracking with BEOS test.[65] The Validation studies on Brain Fingerprinting is being pursued in Raksha Shakthi University, Gujarat.[66] The numbers of cases in which persons are subjected to Polygraph and BEOS Tests have been increasing.[67] Moreover, many new tests like Layered Voice Analysis, Suspect Detection System etc., are also being developed by Forensic science Laboratories in India. Various expert committee reports which has dwelled on issues relating to criminal justice and forensics are also in favour of creation of more forensic psychology division and extensive use of these tests.[68]

64 . Fact under Indian Evidence Act means and includes both physical fact and psychological fact. Under s. 3 of The Indian Evidence Act 1872, Fact means and includes-
1. Anything , state of thing or relation of things , capable of being perceived by senses; or
2. Any mental condition of which any person is conscious.
Investigating officers are required to collect evidence not only with respect to physical fact but also with respect to mental fact.

65. *Self Study Report Submitted To National Assessment and Accreditation Council (NAAC) Bengaluru, Karnataka*, India, Gujarat Forensic Sciences University, Gandhinagar, July 2015, p.172, available at http://docshare01.docshare.tips/files/27351/273513245.pdf (accessed on 30/10/2017).

66. Parth Shastri, "RSU collaborates with US firm for Brain Fingerprinting," The Times of India, September 29, 2015, available at https://timesofindia.indiatimes.com/city/ahmedabad/RSU-collaborates-with-US-firm-for-brain-fingerprinting/articleshow/49151968.cms (accessed on 30/10/2017).

67. As per various newspaper reports and information obtained by filing application under Right to Information Act, 2005, by the researcher.

68 Dr. Justice V.S. Malimath, *Committee on Reforms of Criminal Justice Systems*, Government of India, Ministry of Home Affairs, 2003, p.104. Dr. Gopal Ji Misra and Dr. C. Damodaran, *Final Report on Perspective Plan for Indian Forensics*, Ministry of Home Affairs, Government of India, New Delhi, July, 2010, p.40, available at http://www.mha. nic.in/hindi/sites/ upload_files/mhahindi/files/pdf/IFS%282010%29-FinalRpt.pdf (accessed on 23/10/2017).

However, several criticisms are also raised against involuntary administration of the tests which range from theoretical flaws to infringement of human rights. Critics state that when these scientific tests are assimilated in criminal justice system, certain basic human rights recognised by international human rights instruments which are relevant from the perspective of rights of accused are likely to be affected. They are : The right to recognition before the law and equal protection of the law;[69] The right to life, liberty, and security[70] of the person; The right to equality of arms,[71] The right to humane treatment and freedom from torture and cruel, inhuman, and degrading treatment or punishment; Right against self-incrimination and right to silence; The Right to be presumed innocent; Right to respect for one's private life/ privacy;[72] Right to legal aid and assistance;[73] Right to health, safety and medical care;[74] Right to enjoy the benefits of scientific progress and Right to fair trial. But the main criticism is with respect to the impact of these tests on right against self-incrimination and right to fair trial of the accused when the test results are presented as evidence in trial.

The right to fair trial is a broader right which commences from the pretrial stage and extends to post conviction stage. However, for the purpose of the study, the

69. This right is recognized in International human rights conventions and regional conventions like Part III, Arts 16 and 26 of ICCPR; Art. 5(a) of The International Convention on Elimination of All Forms of Racial Discrimination, 1966, Arts.6 and7 UDHR; Part I chapter II, Arts 3, 24. American Convention on Human Rights, 1969; Part. I, Chapter I, Arts. 3and 5 of The African Charter on Human and Peoples Right, 1981; Part. I, Art. 6(1), Standard Minimum Rules on the Treatment of Prisoners, 1955. This right assumes relevance when Forensic Psychological Tests are assimilated. Because there is an argument that the tests like Narco Analysis affects human dignity and degrades the subject to the status of object. It is also argued that equality clause is also violated as the resources to conduct the tests are available only to the state and not to the individual accused.

70 The concept of security is conceived as an attribute of individuals and populations. Security means idea of ordinary citizens more secure. For detailed discussion see Michael Dumper and Esther D Reed, *Civil Liberties and National Security*, Cambridge University Press, U.K, (2012), p.14.

71 As far as Forensic Psychological Tests are concerned, there is always an argument that this right is violated as only the state is entitled to conduct the test in the present legal set up.

72 These rights is recognized in International Human rights law like UDHR, ICCPR, Art.17; Convention on Rights of the Child, 1989, Art.16; African Charter on Human and Peoples Rights, 1981, Art.11; American Convention on Human Rights, 1969, Art.21; European Convention For the Protection of Human Rights and Fundamental Freedoms, 1950, Art.8; One of the main allegations against Forensic Psychological Tests are that they violate right to mental privacy.

73 Art. 14 (3) of ICCPR. This right assumes importance because, when scientific tests are applied during interrogation, the services of a lawyer are inevitable.

74 This right assumes importance especially during the administration of Narco Analysis where anesthetic procedure is involved. The test is criticized as affecting physical and mental health.

concept of right to fair trial is confined with respect to admissibility of the test results. This is done because one of the main issues with respect to these tests is with respect to their admissibility in trial.[75] Hence the researcher analyses the evidentiary aspects of these tests in the light of right to fair trial of the accused. It is perused whether the results obtained by the administration of these tests satisfies the legal standards as to admissibility of scientific evidence[76] ensuring fair trial of the accused. The questions like whether the evidence meets reliability and admissibility criteria, whether it falls within evidentiary barriers impeding with fact finding process or whether it falls within evidentiary barriers due to reasons extraneous to fact finding process as in the case of improperly obtained evidence, assume importance. All these are very much significant from the perspective of right to fair trial of the accused. Hence it is important to analyse whether evidence obtained from these tests satisfies important international standards ensuring fair trial of the accused which is required for the admissibility of such evidence.

The intention of the study is to examine how far the Indian legal system can be tuned to assimilate these tests without sacrificing the rights of the accused. The reasons like these evidence should be excluded on grounds of evidentiary barriers should not be given undue weight age. It is also important to note that reforms and relaxations in rules of evidence have taken place in many common law countries. For instance, in England, the Criminal Reform Committee has made numerous

75. With respect any scientific evidence the following issues are relevant like high technicality of expert evidence, pro prosecution bias of scientific expert testimony which may impair scientific impartiality, experts may testify beyond the bounds of their experience, issues like human error proficiency testing of forensic laboratories may also affect reliability of the test results, etc. These aspects and other issues relating to Forensic Psychological Evidence are analysed in detail in Chapter VI.

76. As per National Research Council Report, there are two very important questions that should underlie the law's admission of and reliance upon forensic evidence in criminal trials, They are (1) the extent to which a particular forensic science discipline is founded on a reliable scientific methodology that gives it the capacity to accurately analyze evidence and report findings and (2) the extent to which practitioners in a particular forensic discipline rely on human interpretation that could be tainted by error, the threat of bias, or the absence of sound operational procedures and robust performance standards. These two questions are equally applicable in the case of Forensic psychological evidence. These aspects are analysed in Chapter VI. See, Committee on Identifying the Needs of the Forensic Sciences Community, National Research Council, *Strengthening Forensic Science in the United States: A Path Forward*, National Academy of Sciences, August 2009, p. 87, available at https://www.ncjrs.gov/pdffiles1/nij/grants/228091.pdf (accessed on 05/09/2017).

recommendations regarding admissibility of hearsay evidence.[77] This was incorporated in Police and Criminal Evidence Act, 1984 which provides for admissibility of confessions in criminal proceedings.[78] Further amendments were made in Criminal Justice Act, 1988, especially with regard to documentary hearsay, presentation of evidence, expert reports etc.[79] In USA also, reforms in law of evidence was made beginning with Model Code of Evidence in 1942, culminating in the enactment of Federal Rules of Evidence, 1975.[80] Similar amendments were also made in other common law countries like Australia, Canada etc.[81]

The common law rules are evolved for trial by jury.[82] In the absence of trial by jury, the matter is heard by lay magistrates. They are not legally qualified persons. It is for this reason that greater restriction in the area of admissibility of evidence is required in jury system than in the cases where the trial is made before legally qualified judges.[83] In India there is no jury system. The judicial officers including magistrates are legally qualified persons. Hence the fear that undue weight will be given by lay jury to scientific evidence is unfounded.[84] Moreover Indian Evidence Act, 1872, is inclusionary in nature and relevance alone is the sole criterion for admissibility. Hence greater restriction as to admissibility of evidence is not required in Indian legal system.[85]

77. Michael Frindt, "Hypnotically Refreshed Testimony and its Admissibility and Proposed Benefits Thereof for Namibian Trials," (Dissertation, Bachelor of Laws, University of Namibia, 2000), pp.14-16, available at http://wwwisis.unam.na/theses/frindt2000.pdf (accessed on 13/09/2017).
78. *ibid.*
79. *ibid.*
80. *ibid.*
81 Extensive reforms of the rules of evidence in both Canada and Australia have been undertaken by the respective Law Reform Commissions. Similarly, South Africa has made an amendment to its evidence rules by way of the South African Evidence Amendment Act 1988**.** This Act amended the position of admissibility of hearsay evidence. Hearsay evidence is now admissible in terms of Section 3 of the amended Act if such admission is in the interests of justice cf *ibid.*
82. Colin Tapper, *Cross and Tapper on Evidence*, Oxford, London, (12th edn., 2010), p. 4.
83. *ibid*.
84. *ibid.* In this work, the author was discussing about position in Namibia and South Africa wherein no jury system exists, as in India. The author was discussing about admissibility of evidence obtained by hypnosis.
85. *ibid*. Three factors have contributed to the largely exclusionary character of the law of evidence, namely the jury, the oath and the common law adversary system of procedure. The fear that evidence may be manufactured by or on behalf of the parties also played its role in the development of exclusionary rules of evidence.

Similarly, right against self-incrimination which is mainly stated as affected by the involuntary administration of the tests has been subjected to review in many common law countries like UK, Australia etc. Dilution to Miranda rights is visible in US jurisprudence also.[86] Though 180th Law Commission Report has stated that no change of law relating to the right against self-incrimination, has to be made in consonance to english and European Convention on Human Rights decisions, the Malimath Committee which submitted its report later has taken a contrary view. Hence it is important to consider the tests in the perspective of these two rights.

In India these tests are conducted on accused, witnesses and victims. However, as accused is the main source of information relating to the crime, the tests are mostly administered on the accused. Hence the study is concentrated on the human rights of the accused with respect to right against self-incrimination and his right to fair trial confining to admissibility aspects. As the study is mainly centered around the impact of Forensic Psychological Tests on rights of the accused, it is important to examine the definition of accused.

## 1.7 Who is an Accused?

The Defendant in a criminal case is generally called as an accused. Accused is a person who is prosecuted by the state and is punished if found guilty by the competent court for committing crime. The term accused is not defined in Constitution or in the Code of Criminal Procedure, 1973.[87] In Law Lexicon dictionary the term "accused" is defined as a person against whom an allegation has been made that he has committed an offence or who is charged with offence.[88] This means that as soon as a person is formally alleged to have committed a crime, he comes within the ambit of accused. This also implies that a person could become an accused even from the stage of interrogation and continue till he is convicted or acquitted by a competent court.

86. *infra* chapter V.
87. In Code of Criminal Procedure, 1973, the term accused is not defined in Section 2. The term accused is used in Ss.207, 209, 228(2), 299, 303, 313,317,318,363, 379,390,391 and 428 of The Code of Criminal Procedure, 1973.
88. P.C. Hari Govind, "Scientific Interrogation in Criminal Investigation Vis –a-Vis Rights of the Accused: Ethical Imbalances," Vol XXXIV (1&2), Cochin University Law Review, pp.64-107 at pp. 73-76.

When the position under European Convention on Human Rights is considered, the definition of accused seems to be related in terms of commencement of defence rights under Article 6 of the Convention.[89] Accordingly, when a person is officially notified of an allegation against him or if he is 'substantially' affected by the steps taken against him, he is considered as an accused.[90] Though some notification of accusation must be there, the European Court seems to give emphasis to what has in fact happened than procedural formalities.[91] This means that a person may be considered as an accused at a much earlier stage, when he first realises that serious consideration is being given to the possibility of a prosecution.[92] It may be stated that the view taken by Strasbourg Court is more helpful for the purpose of this study. Thus, the person must be considered as an accused from the stage in which he is asked to account for his allegations by the lawful authority.

As per Law Lexicon, if evidence whether oral or circumstantial points to the guilt of a person and if he is taken on custody and interrogated on that basis, he is a person accused of an offence.[93] It is not necessary that his name appears in First Information Report. As per K.J. Aiyar's dictionary, accused is defined as a person against whom a complaint is given to a court that he has committed an offence.[94] In order to determine whether a person is accused or not at a particular time, it is necessary to look into the nature and scope of the proceedings, the nature of the accusation and its probable consequence.[95]

Indian Judiciary has also tried to define the term accused of an offence within the ambit of Article 20(3). Accordingly, to claim the protection under this provision, a formal accusation relating to the commission of an offence which in normal course

89. David Bentley and Richard Thomas, " Fair Trial," in Madeleine Colvin and Jonathan Cooper, *Human Rights in the Investigation and Prosecution of Crime*, Oxford University Press, New York, (2009), pp. 251-284 at p. 260.
90. *Deweer* v. *Belgium*, (1980) 2 EHRR 439; See also John Jackson, "Re-Conceptualizing the Right of Silence as an Effective Fair Trial Standard," Vol. 58(4), The International and Comparative Law Quarterly, October 2009, pp. 835-861 at p.855.
91. *supra* n.89 at p.259.
92. *id*. at p.260.
93. *supra* n. 88.
94. *K.J. Aiyar's Dictionary*, The Law Book Co., Allahabad, (12th edn., 1998) at p.24.
95. *M.P. Sharma* v. *Satish Chandra*, A.I.R. 1954 S.C. 300; *State of Bombay* v. *Kathi Kalu Oghad*, A.I.R. 1961 S.C. 1808; *Ambalal Chimanla Choksi* v. *State of Maharashtra*, A.I.R. 1966 Bom. 243.

would result in prosecution must be made against the person.[96] In *Nandini Satpathy*[97] considering the question, who is an accused under Article 20(3), Justice V.R. Krishana Iyer coined the concept of potential accused. The *Nandini Satpathy* gives a notion that, from the very moment a question of an incriminating nature is put to a person, he can avail the protection of Article 20 (3) of the Constitution. Apart from the potential accused concept, every person marked as an accused in the FIR, may also be considered as an accused under Indian Law.

As soon as allegation is made against a person as to the commission of an offence, he becomes an accused and continues to be so, till he is convicted or acquitted by a court of competent jurisdiction. It is irrelevant whether such person is arrested or kept in custody or is on bail. Thus, the concept of accused is not confined to a person against whom prosecution is started. A person may be considered as an accused even at the stage of investigation.

For the purpose of this study, accused may be defined as a

1. A person against whom an allegation of the commission of an offence has been made and thereby an action has been taken by an appropriate authority which would in normal course result in criminal prosecution; or
2. A person against whom an action has been taken by an appropriate authority so as to initiate criminal prosecution and on conviction a punishment may be imposed as an accused.

Thus it may be stated that, once a person comes in disadvantaged position and is asked to account for his allegations by the lawful authority, he may be considered as an accused.

96. *Raja Narayan Lal Bansilal* v. *Maneck Firoz Mistry*, A.I.R. 1961 S.C. 29. What constitutes formal accusation is a flexible rule. See also M.P. Jain, *Indian Constitutional Law*, Lexis Nexis, Haryana, India, (7th edn., 2014), p1107.

97 . *Nandini Satpathy* v. *P.L. Dani*, A.I.R. 1975 S.C.1025.

## 1.8 Nature of Accusatorial System in Criminal Justice Administration in India

Generally the main distinction between accusatorial and inquisitorial system is based on the role played by the judge in the system. However, the distinctive feature of accusatorial system is that the system gives more importance to the rights of the accused.[98] There is benevolent approach towards the rights of the accused from the beginning of investigation till the final decision of the case. In this system, the judge makes decision based only on the evidence collected and presented before him in public trial. Hence credibility of evidence and manner in which evidence is collected is very much important in accusatorial system.

Indian criminal justice system shows the features of both accusatorial and inquisitorial system.[99] In Indian system, magistrate is not completely excluded from investigation stage. The term inquiry[100] is also defined in the code along with investigation. Apart from that judge is not forced to sit as mute spectator in criminal trial. This can be considered as a major deviation from the very nature of accusatorial system. But emphasis given by the system on the right of the accused is more important than judge's role.

In criminal justice system in India, the accused is presumed to be innocent. The prosecution has the burden to prove the guilt of the accused beyond reasonable doubt. The accused has right to silence. The parties present their evidence before an impartial judge and the trial is mainly oral, confrontational and continuous. Viewed in this perspective, Indian system is more in the nature of accusatorial system.[101]

98. *supra* n. 88 at pp. 69-71.
99. Some inquisitorial features are found in the Code of Criminal Procedure, 1973 and in Indian Evidence Act, 1872. For instance, Ss. 228 and 240 of the Code of Criminal Procedure, 1973, suggest that charge against the accused is to be framed by the Court and not the Prosecution. s. 311 empowers the court to examine any person as a witness though such person has not been called by any party as a witness .Similar power is also given to the court under s.165 of the Indian Evidence Act, 1872. s. 313 allows the court to examine the accused at any time to get an explanation regarding the trial. s.321 prohibits the prosecutor from withdrawing the case without the consent of the Court. Dr. K.N. Chandrasekharan Pillai, *R.V. Kelkar's Criminal Procedure*, Eastern Book Company, Lucknow, (5th edn., 2012), p.327.
100. The Code of Criminal Procedure, 1973, s. 2(g). Inquiry means every inquiry other than trial, conducted by a magistrate or a court.
101. Though in earlier period difference between the two system assumes importance, in the present day world the question asked is whether there is a converging point or not. No system in the world is completely accusatorial or inquisitorial.

It may thus be stated that the unique feature of criminal justice system in India is a design of accusatorial scheme with assurance of human rights to the accused.[102] The Constitution of India, The Code of Criminal Procedure and the judicial decisions ensure that every person accused of an offence has right to fair investigation and trial. Therefore, the collection of evidence during investigation must be in accordance with the procedure established by law. Then only the evidence could be useful in criminal trial which determines the guilt or innocence of the accused.[103] Hence it is important to analyse, how far assimilation of Forensic Psychological Tests as a tool of criminal investigation affects the rights of the accused.

## 1.9 Significance of the Study

In today's scientific world, scientific orientation of criminal justice system is inevitable. Hence assimilation of Forensic Psychological Tests in criminal justice system has become the need of the hour. However the problem with these entire tests is with respect to its conclusiveness and their human rights concern. Lack of training of the examiners, lack of standardization, empirical study and research which have impact on right to fair trial etc., are also raised as other common issues. Therefore a study is required to examine as to how far assimilation of Forensic Psychological Tests as a tool of criminal investigation affects the human rights of the accused especially right against self-incrimination and right to fair trial pertaining to admissibility issues.

It is also important to note that the crime rate is increasing and criminals resort to scientific methods in committing crime even without leaving trace evidence. At this juncture Forensic Psychological Tests are the only solace. The tests belong to a new branch of study and the research in this area is also developing. To avail the benefits of scientific progress is also a basic human right which cannot be ignored. Hence, there is also a need to study the possibility of using these tests as a means to

102. *supra* n.8 at p. 5.
103. Manjula Batra, *Protection of Human Rights in Criminal Justice Administration*, Deep and Deep Publication, New Delhi, (1989), p. 42.

facilitate the elicitation of evidence during criminal investigation and also the need for using the test results as corroborative evidence in trial without infringing human rights of the accused.

There is no legislation or enactment covering neither these most modern Forensic Psychological Tests nor any legal conditions as to conducting the tests is laid down in Criminal Procedure Code, Indian Penal Code, Indian Evidence Act etc.[104] Various judicial pronouncements on the subject including *Selvi,*[105] did not prescribe a binding methodology in this regard for the investigating officers, judicial officers or other law enforcement agencies, which may result in infringement of human rights of the accused. Moreover, there is also no legislation in India governing forensic science as such. So presently it is the *Selvi* guidelines which govern the tests. Mere guidelines without legislative backing will not be adequate, especially when human rights issues are involved. Even in *Selv*i decision, the apex court has given a margin to the legislature to frame legislation on this subject which has not so far been done. Hence in the absence proper legislation and procedural safeguards to protect the rights of the accused, a study covering all the tests and need for proper regulation applicable to all the tests is quite relevant, significant and is absolutely essential.

A study of the investigatory and evidentiary use of the tests in the light of human rights of the accused as to the international position in comparison with Indian position is not so far been made. In these circumstances, it is proposed to make a study on this subject, which may be of immense help to the investigating agencies and the judicial officers, so that the human rights of the accused who are subjected to these tests could properly be safeguarded.

104. In the light of *Ritesh Sinha* v. *State of U.P.*, (2013) 2 S.C.C. 357, it is debatable whether provisions of Criminal Procedure Code will be applicable to these tests. In that case, which was concerned with voice samples, one of the main issues was whether in the absence of any provision in Criminal Procedure Code, a magistrate can authorise investigating agency to record the voice sample of the person. In that case there was difference of opinion on this issue between two judges in the division bench and the matter was referred to a larger bench. In fact the issue is equally applicable in the case of Forensic Psychological Tests especially LVA Test wherein voice sample is involved.

105. *Selvi* v. *State of Karnataka,* (2010) 7 S.C.C. 263. The court laid down certain guidelines to be followed while conducting Polygraph, Brain mapping and Narco Analysis Tests.

## 1.10 Objective of the Study

The objective of the study is to evaluate whether assimilation of Forensic Psychological Tests in criminal justice system in India would affect the human rights of the accused especially right against self-incrimination and right to fair trial confining to admissibility issues and also to analyse the extent which these issues are addressed by the present law in India.

## 1.11 Limitation of the Study

One of the most important limitations is that it is difficult to obtain information relating to this subject as it pertains to investigative methods and has to be obtained from police and forensic science department, and other investigating agencies. Though officials in law enforcement and Forensic Science Laboratories are generally very much interested in the research in these areas, they are reluctant to share information. Hence most of the data were obtained by means of application filed under Right to Information Act, 2005. However scientific issues relating to these tests are beyond the scope of this study.

## 1.12 Research Methodology

The study is mainly doctrinal and analytical in nature which is based on primary and secondary sources of legal data. The primary sources are the Constitution, legislation, rules, case laws from India, USA, UK and other common law countries like Canada, Australia and New Zealand, International Courts and international instruments applicable to the criminal justice system. The secondary sources are books, journal articles, conference articles, web articles, magazines and newspaper reports. The theories and opinions of various scholars are also examined to collect information. A personal visit to Forensic Science Laboratories at Thiruvanathapuram, Chennai, National Capital Territory, Delhi, Central Forensic Science Laboratory, Central Bureau of Investigation Chennai Branch, Directorate of Forensic Science, Gujarat and Truth Lab in Chennai was made. The information was collected personally from the forensic psychologists through interview method. A survey was conducted among police officers in state of Kerala ranking from Sub Inspector level to Inspector General of Police, to ascertain whether the tests actually

help them as an aid in criminal investigation by exonerating innocent and to get a lead in the investigation. Information was also collected from the persons who have undergone the tests to ascertain as to the physical and psychological impact of the tests on them and also to ascertain whether the tests actually helped in exonerating innocent persons. Data as to number of cases in which Forensic Psychological Tests were conducted from 2007 to 2015, details as to the safeguards taken, delay, competency of examiners and standard operating procedures in conducting the tests were also collected from the Forensic Science Laboratories in India by filing application under Right to Information Act, 2005.

## 1.13 Research Question

**Whether collection of evidence based on Forensic Psychological Tests and their admissibility in trial affect right against self-incrimination and right to fair trial of the accused.**

The following sub questions have been formulated in each chapter by the researcher to facilitate the study in a systematic manner.

## 1.14 Sub Questions

1. What are the main human rights of the accused which are affected when he is involuntarily subjected to Forensic Psychological Tests and when their results are admitted in trial?
2. Whether involuntary administration of Forensic Psychological Tests violate right against self-incrimination and whether results derived from these tests amount to "testimonial compulsion." Comparative analysis of Indian position with respect to other common law countries and Strasbourg Court jurisdiction
3. Need for reinterpretation of testimony in self-incrimination clause in the light of scientific and technological developments
4. What are the legal standards of admissibility ensuring fair trial adopted by common law countries in interpreting Forensic Psychological Evidence in court room? How far these standards are satisfied in India while dealing with these tests?

- Whether Forensic Psychological Evidence satisfies the admissibility and reliability criteria ensuring right to fair trial?
- Whether evidence based on Forensic Psychological Tests violates right to fair trial by falling within the evidentiary barriers as to admission of relevant evidence?

5. Need for proper regulation of investigative and evidentiary use of Forensic Psychological Tests in India.

## 1.15 Scheme of the Study

The entire study is divided into nine chapters. Chapter I describes the outline of the study. The chapter examines international human rights from the perspective of rights of accused and its application in domestic settings in India. The chapter analyses need for assimilation of forensic science in criminal justice system and also traces the evolution and development of forensic science in India. The chapter traces the definition, classification and development of forensic psychology as a specialty and its significance in criminal justice system. The chapter analyses nature of accusatorial system in India and the concept of accused in Indian Law.

In Chapter II, an attempt has been made to analyse the historical account, development, the theoretical aspects, working, critical issues involved and the validation studies made with respect to Forensic Psychological Tests like Polygraph, Brain Electrical Oscillation Signature Profiling Test, Narco Analysis, Psychological Stress Evaluator and Layered Voice Analysis Tests. Chapter III analyses the present legal status of Forensic Psychological Tests in different countries in the world where the tests are prominent in criminal investigation as well as in trial. The chapter also peruses the position in India. In order to study Indian position, an analysis of information obtained under the Right to Information Act, 2005 is made. In chapter IV, an attempt has been made to analyze whether involuntary administration of Forensic Psychological Tests violates right against self-incrimination. The chapter makes a comparative analysis of Indian position with the position in other common law countries and European Convention jurisprudence. In chapter V, an analysis has been made, as to the need for re interpretation of testimony in the light of scientific and technological developments.

The chapter VI examines the legal standards as to the admissibility ensuring fair trial adopted by common law countries while interpreting Forensic Psychological evidence in court room. The chapter examines how far these standards are satisfied in Indian scenario. The chapter also analyses the viability of application of *Daubert* test with respect to psychological expert evidence as in the case of evidence based on Forensic Psychological Tests.

Chapter VII makes an attempt to examine evidentiary barriers as to admissibility of relevant evidence and analyses whether evidence based on Forensic Psychological Tests falls within the barriers affecting right to fair trial. The chapter examines both evidentiary barriers, that impeding with fact finding process like hearsay rule and also those barriers on grounds extraneous to fact finding process like circumstances in which evidence is collected. The chapter also examines the criteria adopted by different common law countries in dealing with such evidence and compares with the position in India.

Chapter VIII analyses how far legislation and judicial precedents in India are adequate to address the legal and human rights issues which emerges as a result of assimilation of the tests in criminal justice system. A critical analysis of *Selv*i decision in the light of various jurisprudential norms is made in this chapter. The Chapter peruses the statutory basis which authorizes the investigating agencies to conduct the tests. The chapter also analyses whether real and valid consent is a valid ground for the administration of the tests. An analysis of empirical study is also made in this chapter. Chapter IX summarizes the conclusion made by the study. Certain suggestions are made for the improvement of the existing system.

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# Chapter - II
# HISTORY AND DEVELOPMENT OF FORENSIC PSYCHOLOGICAL TESTS

In this chapter, an analysis of historical and theoretical aspects of Forensic Psychological Tests is made. The chapter peruses the validation studies and also the major criticisms leveled against these tests.

## 2.1 Evolution and Development of Forensic Psychological Tests

The historical account of modern Forensic Psychological Tests from the days of Jesus Christ through the middle Ages[1] could be traced to the history of torture[2] or some form of trial by ordeals.[3] Prevalent ordeals [4] were the ordeal of red hot iron, balance, boiling water, rice chewing, red water etc. These ordeal techniques were not based on any peculiar insight into the psychological process underlying guilt or innocence. This, in fact had arisen out of superstition and religious faith. These tests sought to examine the deepest recesses of the subjects mind by putting questions to

1. Don Grubin & Lars Madsen, "Lie Detection and the Polygraph: A Historical Review," Vol. 16(2), The Journal of Forensic Psychiatry and Psychology, 2005, pp.357-369 at p. 358.
2. *ibid.*
3. Trial by ordeal was prevalent in ancient Greece, pre-Christian Scandinavia, Iceland, Japan, and Africa. See Larson. J.A, "Lying and its Deception," (1932) 65-93 as cited in Satyendra. K. Kaul and Mbohd.H. Zaidi, *Narco Analysis, Brain Mapping, Hypnosis and Lie Detector Tests in Interrogation of Suspect*, Alia Law Agency, Allahabad, (2009), p.570.
4. In ordeal of red hot iron, the accused had to prove his innocence by liking a red hot iron 9 times. If not burnt, he is innocent and if his tongue is burnt, he is guilty and the presumption may be that this guilty feeling would make his mouth dry, although fear could also cause the same result. In ordeal of balance, the veracity of the accused is tested by placing him on one scale of balance and in the other a counter balance. The person is then stepped out of the balance and he has to listen to the judge delivering extortion to the balance and has to get back in. If it is found that he had become lighter than before, he would be acquitted. Ordeal by boiling water is done by making all suspects to dip their hands in cold water and then in boiling water, if the hands of a person burn, then he is guilty. Ordeal of rice chewing was prevalent in India. In this ordeal the suspect is asked to chew rice and it is believed a guilty person would not be able to swallow it as his throat would become suffocated due to the action of God. In Ordeal of red water the accused is made to fast for 12 hours, swallows a small amount of rice and then consumes dark coloured water which act as an emetic. If the person ejects all the rice, he would be considered as innocent, otherwise as guilty. For detailed discussion of ordeals, see Paul .V. Trovillo, "History of Lie Detection," Vol. 29 (6), Journal of Criminal Law and Criminology, March-April 1939, pp.848-881 at pp.850-51,854. See also, Jerome H. Skolnick, "Scientific Theory and Scientific Evidence: An Analysis of Lie-Detection," Vol. 70(5), Yale Law journal, April 1961, pp.694-728 at p.696.

God, who, it is presumed, would answer through the results of the tests.[5] However later, as part of secularization of the society, blind reliance on God's omnipresence was renounced.[6] By eighteenth century, the practice of torture declined [7] and stress was made more on scientific and logical reasoning and questioning.[8] Later, with the surfacing of statistics, development of science and technology, criminalistics and psychology, objective measures for detecting truthfulness during interrogation was developed. With this emerged the objective measures of measurements, which were used in criminal investigation.

### *2.1.1 Polygraph*

The beginning of the use of objective measurements was made with the invention of various scientific apparatus of measuring pulse,[9] blood pressure,[10] inspiration expiration ratio,[11] galvanic skin response[12] and word association technique,[13] which all paved way for the development of Polygraph.

Regarding use of blood pressure as a criterion of measurement, the contribution of Munsterberg and Marston are worth mentioning. They advocated for use of blood pressure test in criminal investigation. Marston submitted the results of

5. During these times the causes of crime were explained in terms of demonological theory. Crime was seen as manifesting the work of devil. Hence criminal justice of those times tend to impose excessive and cruel punishments to criminals. See J.P.S. Sirohi, *Criminology and Penology*, Allahabad Law Agency, Haryana, (7th edn., 2011), pp.75-79.
6. See Hanson, F. Allan, *Testing Testing: Social Consequences of the Examined Life*, University of California Press, Berkeley and Los Angles, (1993), pp. 55-61, available at http://publishing.cdlib.org/ucpressebooks/view?docId=ft4m3nb2h2&chunk.id=d0e911&toc.depth=1&toc.id=d0e911&brand=ucpress (accessed on 28/08/2017).
7. In early 1700, Daniel De Foe, who was first to move away from torture suggested that deception could be evaluated by measuring blood pressure. It seems that in 1895, Cesare Lombroso, the father of modern criminology was the first, to attempt to use science during interrogation. See, Paul .V. Trovillo, *supra* n. 4.
8. *supra* n. 3 at p.567.
9. By Galileo. Galileo's instrument was pulsilogium or pulse watch. Paul V. Trovillo, *supra* n. 4 at p.855.
10. See *id.* at p.869-70.
11. Burtt and Benussi had reported "inspiration-expiration "ratio in detecting deception. Benussi measured the recorded respiratory curves from a pneumograph and found that if the length of inspiration were divided by the length of expiration, the ratio was generally greater before truth telling than afterwards. *id.* at p.870.
12. For detailed discussion, see, Paul. V. Trovillo, "History of Lie Detection," Vol. 30(1), Journal of Criminal law and Criminology, May – June 1939 , pp. 104-119 at p.105.
13. Paul .V. Trovillo, *supra* n. 4 at pp. 865-869.

his test in the famous *Frye* case.[14] Other significant work was that of Lombroso who was one among the first, to adopt physiological notions while interrogating a person to ascertain the veracity of his statements.[15] His student's Mosso's experiments with plethysmograph[16] and "sphygmomanometer"[17] also contributed to the development of Polygraph Test in criminal proceedings.

It was John Issac Hawkins, in 1804, who first coined the term Polygraph.[18] Important landmark developments relating to Polygraph, which deserve special mention are, invention of "ink Polygraph," [19] John Augustus Larson's invention[20] of first Polygraph which concurrently register changes in pulse rate , blood pressure and respiration, developing of interview procedure of relevant-irrelevant technique,[21] Studies by Blatz on fear,[22] development of prototype of modern Polygraph by Leonard keeler,[23] and its use by US federal Government before and after first world war, development of improved instrumentation by Lee [24]and its experimentation on juvenile delinquents,[25] Reid Polygraph and Reid's control question technique[26] and

14 *US* v. *Frye,* 293F.1013( D.C. Cir. 1923),wherein the "general acceptance test was formulated for the admissibility of lie detector evidence and which had continued as a rule for nearly 70 years till the decision of the Supreme Court in *Daubert* v. *Merrell Dow Pharmaceuticals*, 509 U.S. 579 (1993).

15 *supra* n. 3 at p.862-86.

16 'Plethysmograph" monitors changes in blood flow of a subject during interrogation. It was Cesare Lombroso who developed this device in 1895. Darcia Helli, "The History of Lie Detection," available at www.quietfurybooks.com/books/liedetection.pdf (accessed on 31/03/2015). See also Paul .V. Trovillo, *supra* n. 4.

17. This instrument is also used while interrogating a subject to measure blood pressure, was developed by Cesare Lombroso. *ibid.*

18. The term is derived from Greek and Polygraph means many writings. It enabled the user to write with two pens creating a duplicate copy at the same time when the original is created. For historical perspective, see, Jennifer M C Vendemia, "Credibility Assessment: Psychophysiology and Policy in the Detection of Deception," Vol. 24(4), American Journal of Forensic Psychology, 2006, pp. 53-85 at pp.54-55.

19. Invented by James Mackenzie in 1908 by taking pulse and blood pressure.

20. The invention was in 1921. It was he who was the first to simultaneously record more than one physiological parameter for the purpose of detecting deception. See *supra* n.18. See also, "History of Polygraph," available at http://www.argo-a.com.ua/eng/history.html (accessed on 28/08/2017).

21. John Larson has developed this. See, John J. Furedy & Heslegrave. R. J., "Validity of the Lie Detector: A Psycho -Physiological Perspective," Vol. 15 (2), Criminal Justice and Behaviour, June 1988, pp. 219-246 at p.220.

22 *supra* n.18.

23. The most prominent Polygraph examiner of all the times. One peculiar feature is his method of rechecking the responses of suspects by one or more control tests. Cf. *ibid*.

24. *supra* n. 20.

25. Lyon's Experimentation of Lee's apparatus on juvenile delinquents. The results of his tests were admitted in evidence by the juvenile court along with other evidences involving the child. *ibid.*

finally the development of Backster zone comparison technique.[27] By 1954, officially, the Polygraph was used for general security screening in three federal agencies,[28] in USA; Operations Research Office, Central Intelligence Agency and the National Security Agency. Presently Polygraph examinations are conducted in more than 90 countries in Government, law enforcement and private sectors.[29]

### *2.1.2 Narco Analysis*

Later on, the studies on the use of truth drugs like scopolamine, sodium amytal, and sodium pentothal used in anesthetic session and its utility in crime detection started.[30] The history of the use of Narco Analysis Test in crime detection could be traced to the observations that were noted during obstetrical practice in the period between 1903-1915, wherein mild anesthesia was used which induced what was known as twilight sleep.[31] It was observed that, during the period of twilight sleep, the women who were under the influence of these drugs were extremely candid.[32] They were uninhibited in making statements.

Robert House, an obstetrician by practice, in Texas, believed that this phenomenon could be used in criminal investigation and that it would be of great value in getting factual information from persons who may be lying.[33] In 1920, he used the drug scopolamine on two prisoners in Della's Country jail. During the test, both of them denied the charges and in the trial they were found not guilty. Robert House's experiment and conclusion obtained wide propaganda and it was soon

26. Reid Polygraph was the first instrument to use a movement sensor to detect subject movement during examination.
27. Contribution was made by Cleve Backster with respect to development of Backster zone comparison technique and his introduction of a "qualification system of chart analysis" by which more standardization and objectiveness was achieved.
28. *OIG Special Report on Use of Polygraph Examinations in the Department of Justice I-2006-008*, U.S. Department of Justice, Office of the Inspector General, Evaluation and Inspections Division, Washington D.C., September 2006, pp,i-ii, available at https://oig.justice.gov/ reports/plus/e0608/final.pdf (accessed on 05/12/2015).
29. *ibid.* See also, s*upra* n. 18.
30 *supra* n. 3 at p.571. The oldest of these drugs is the alcohol. This well-known effect of alcohol is known by the statement "in Vine, there is truth". See also, Gilbert Geis, "In Scopolamine Veritas: The Early History of Drug Induced Statements," Vol. 50, Journal of Criminal Law and Criminology, 1959-1960, pp.347 -356 at p.349.
31 C.W. Muehlberger, "Interrogation Under Drug Influence: The So Called Truth Serum Technique," Vol.42 (4), The Journal of Criminal Law, Criminology and Police Science, November – December 1951, pp. 513-528 at pp. 513-14.
32 . *ibid*.
33. *ibid*.

launched in public consciousness. But shortly scopolamine was disqualified due to its various side effects like hallucinations, somnolence, disturbed perception and various physiological phenomena like head ache, rapid heartbeat, blurred vision etc. which distracted the subject from the very purpose of the interview.

Then, they stared to use, which the pharmacologists call "hypnotic and sedative drugs." [34] The general characteristics of these drugs are to produce depressant action, which had impact on cerebrospinal axis.[35] Barbiturates[36] and its derivatives would come under the classification of these drugs.[37] In early 1930's barbiturates were used for anesthesia. The fact that drugs might facilitate communications with emotionally disturbing patients came to lime light by accident, when Arthur S Lovenhart with his associates was experimenting with respiratory stimulants. [38] This attracted the attention of police officials and they became interested in Barbiturates.[39]

With the passage of time, injections of sodium amytal, a barbiturate became more prevalent in psychiatric treatment so as to induce the subjects to talk freely.[40] During World War II, there was more use of this method in the treatment of soldiers who were suffering from acute war neurosis and also to extract information from prisoners of war. [41] But still some studies had shown that this method was not universally successful.[42]

34. Yawer Qazalbash, *Law of Lie Detectors*, Universal Law Publishing Co., New Delhi, (2011), p.23.
35. *ibid*. The degree of depression depends on the potency of the drug, dosage and route of administration.
36. The barbiturates were first synthesized in 1903 and it has remained one of the oldest among modern drugs.
37. *supra* n.34.
38 *id.* at p.28. See also Aneesh V Pillai, "Narco Analysis as a Tool for Criminal Investigation: A Critique of *Selvi's* Case," Vol. XXXIV ( 3 &4), Cochin University Law Review, September-October 2010, pp.353-367 at pp. 355-356.
39. *supra* n. 34 at p.28.
40. It is very much essential for the psychiatrists to discover the crux of the problem.
41. Martin A. Lee and Bruce Shlain, "Acid Dreams: The CIA, LSD, and the Sixties Rebellion," as cited in Jason R Odeshoo, "Truth or Dare? Terrorism and Truth Serum in the Post 9/11 World," Vol. 57 (1), Stanford Law Review, 2004, pp. 209-255, at p. 215.
42. Geo Francis. E, "Efficacy and Ethics of Narco Analysis," (No.5), Asvattha, March 2012, available at, http://www.asvattha.org/Data/Article025.htm (accessed on 19/01/2016).

In 1950's, Central Intelligence Agency in USA had conducted research on the use of sodium pentothal as an aid in interrogation in intelligence as well as counter terrorism operations.[43] With the advent of cold war, America became very much interested in developing truth serum and concentrated more on developing tactics which would help its members of military from succumbing, if they were subjected to these tactics and pursued research on the use of sodium pentothal.[44] In recent years, again there has been demand for the use of this phenomenon in terrorism related cases especially after 9/11 World Trade Centre attack in 2001.[45]

### *2.1.3 Neuro Imaging Tests*

Studies made later, had reported success in crime detection by means of brain potential patterns. Main brain imaging tests which are used in criminal justice system are Functional Magnetic Resonance Imaging based test and EEG[46] based test. EEG based test is used in Brain Fingerprinting in US and BEOS Test in India.

The history[47] of modern brain imaging tests could be traced to 1970's Computed Axial Tomography Scan.[48] The developments proceeded in accelerated pace and included, radiations from exogenous tracers as in Positron Emission Tomography and Single Photon Emission Computed Tomography (SPECT) Scans which were developed in 1980's and endogenously generated magnetic field to image either structure or function, as in magnetic resonance imaging which developed in 1990's.[49] When we analyze the historical aspects of Eletcro Encephalograph based Neuro Imaging Tests, it could be seen that, it was in 1929, the method of EEG was discovered and in 1930's researchers were beginning to use

43. *supra* n. 34.
44. *supra* n. 31.
45. Jason R Odeshoo, *supra* n. 41.
46. Herein after referred to as EEG. In this method, sensors are attached to the scalp of the subject and it is attached to a computer and the information revealed are imprinted on a computer graph. See also, *supra* n. 3 at p.222.
47. Martha J. Farah and Paul Root Wolpe, "Monitoring and Manipulating Brain Function: New Neuroscience Technologies and Their Ethical Implications," Vol. 34(3), Centre of Neuro Science and Society, Hastings Centre Report, May- June 2004, pp. 35-45 at p.36, available at http://repository.upenn.edu/cgi/viewcontent.cgi?article=1006&context=neuroethics_pubs (accessed on 26/05/2015).
48. *ibid.*
49. *supra* n. 34 at p.94. See also, National Centre for Bio Technology Information, US National Library of Medicine, "Epilepsy," PubMed Health, available at http://www.ncbi. nlm.nih.gov/ pubmed health/PMH0001714/ (accessed on 31/01/2013).

EEG in their diagnosis of brain disorder i.e. epilepsy.[50] Further studies and research in electrical wave patterns and event related potentials in mid 1960's were other landmark developments.[51] In 1980's Dr. Lawrence Farwell in USA started research on waves emanating from brain and its utility in criminal justice settings and published research paper on Brain Fingerprinting claiming accuracy of 87% in 1990's.[52] In 2000, Brain Fingerprinting Test result was adduced as evidence in *Terry Harrington* case.[53] As far as BEOS Test is concerned, the test was developed in India by Dr. C. R. Mukundan.

### *2.1.4 Psychological Stress Evaluator*

Studies of influence of fear on voice led to the development of tests like Psychological Stress Evaluator,[54] Computerized Voice Stress Analysis[55] and Layered Voice analysis[56] Test. PSE was produced by a company Dektor and is considered as an application of scientific discovery made by Lippold, Redfearn and Halliday.[57] In 1971, Olaf Lipploid had discovered muscle tremor and had found that voluntary muscles in the arm generate a physiological tremor about 10 per second when a person is in a relaxed state, and that it tends to disappear when he is aroused or stimulated.[58] This theory when applied in the case of voice was used to detect stress, is the theory behind PSE. This means that muscles in throat and larynx would show micro tremor and this would diminish when a subject becomes stressed. LVA was developed in Israel.

Thus, a perusal of the historical developments reveals that Forensic Psychological Tests are developed to put an end to the torture of suspects to elicit confessions.[59] This is due to scientific and technological developments, emergence of

50. National Centre for Bio Technology Information, *ibid.*
51. *supra* n. 3 at p. 284-295.
52 . *ibid.*
53. Will be discussed in detail in forthcoming chapters.
54. Herein after referred to as PSE.
55. Herein after referred to as CVSA.
56. Herein after referred to as LVA.
57. Anders Eriksson and Francisco Lacerda, "Charlatanry in Forensic Speech Science: A problem to be Taken Seriously," Vol. 14(2), The International Journal of Speech, Language and the Law, 2007, pp. 169–193, at p.171.
58. *ibid.*
59. Andre A. Moenssens, "Narco Analysis in Law Enforcement," Vol. 52(4),The Journal of Criminal Law, Criminology, and Police Science, November - December 1961, pp. 453-458 at p.458.

statistics, fast pace development of the field of criminalistics and the emergence of psychology as a new branch of knowledge.[60] The development of these tests is to make criminal interrogation more scientific and ordained with psychological insight.

## 2.2. Polygraph

### *2.2.1 Theoretical Aspects*

The theory behind Polygraph is that, the threat of being discovered in a lie provokes reaction of flight/fight which is an adaptive response to the situations of danger.[61] This would result in a set of physiological changes which is different from that of a normal person.[62]

### *2.2.2 Polygraph Instrument*

Polygraph [63] Test consists of interview or interrogation with psycho physiological measurement. The physiological parameters which are measured are blood pressure, pulse rate, respiration rate and galvanic skin resistance (perspiration rate).Blood pressure and heart beat rate is measured by an arm encircling cuff placed at the upper arm of the body. The cuff which is filled with air is connected to the Polygraph machine through air tubes. The changes in the blood pressure would modulate the air pressure in the cuff, is recorded by the Polygraph machine and is displayed on the computer screen.[64]

The respiratory pattern is measured by two pneumographs which record thoracic movements or volume change during respiration. One is placed around the chest and the other is placed around the abdomen. Each of them is connected to the

60. *ibid*.
61. S.L. Vaya , *Project Report submitted to the Chief Forensic Scientist*, Directorate of Forensic Science, Ministry Home Affairs, New Delhi, National Resource Centre for Forensic Psychology, (2nd edn., 2013), pp.63-64.
62 . *ibid*.
63. Polygraph tests are currently used in criminal investigations in many countries including Belgium, Canada, Israel, Japan, Turkey, Singapore, South Korea, Mexico, Pakistan, the Philippines, Taiwan, Thailand, and the USA. See for details, The British Psychology Society Working Party, *Final Report on A Review of the Current Scientific Status and Fields of Application of Polygraphic Deception Detection*, The British Psychology Society, 6 October 2004, p.10, available at http://www.bps.org.uk/sites /default/files/documents/ Polygraphic _deception_detection_- _a_review_of_ the_current_scientific_ status_and_ fields_ of_ application.pdf (accessed on 28/08/2017).
64. Katherine, "Lie Detection, Science and Development of Polygraph," Vol. V (I), Illumin, 2003, available at http://illumin.usc.edu/43/lie-detection-the-science-and-development -of-the-Polygraph/ (accessed on 28/08/2017).

machine through air filled rubber tube. As and when the examinee breathes in and out, the air pressure inside the tube changes and is measured by Polygraph machine. The measurement of sweat (Galvanic Skin Resistance) is done by two piece galvanometer attached to the fingertips of the examinee.[65] Thus Polygraph measures these physiological measures simultaneously and continuously on the surface off moving graph paper driven by a mechanism known as kymograph.

### *2.2.3 Procedure of Polygraph Examination*

The test procedure [66] consists of a pretest interview, the Polygraph examination, a post test interview and a reexamination, if required. The examinees written consent is also taken before he is subjected to the test.

#### *2.2.3.1 Pre Test Interview*

This is the rapport building stage. During this phase, the examiner explains the procedure of the test to the examinee and discusses the questions to be asked so that both examiner and the examinee understand the question in the same way. The examiner also analyses the medical history of the examinee. This phase would shape the emotional state of the examinee to face the test. During this phase, the examiner tries to convince the examinee about the accuracy of the test and sometimes demonstration is also made. This phase is not video graphed, and the examinee is hooked to the instruments for recording physiological measures.[67]

#### *2.2.3.2 Test Phase*

During this testing phase, any of the questioning techniques like Relevant-Irrelevant Technique, [68] Control Question Technique, [69] Directed Lie Test, [70]

65. The electrodes are attached to the index finger and the ring finger of the left hand for the recording of the Galvanic Skin Response (GSR). See *supra* n. 61 at p.63-71.
66. *ibid.*
67 . *ibid.*
68 . *id*. at pp.64-65. In this technique, two types of questions are asked. One which is relevant to the crime under investigation and the other is the one which is irrelevant and has nothing to do with the crime under investigation. The rationale behind this test is that if larger response is shown with respect to relevant questions than irrelevant ones, it would indicate that the subject is lying.
69. In the control question technique, responses of control questions are compared with that of relevant questions. Control questions are of general in nature of the type of the event under investigation and would embarrass both guilty and innocent and their denials would be deceptive. Relevant questions are specific questions about crime. This technique is based on the presumption that, in an innocent person, the response to control question would generate more arousal than relevant question. *Report on Polygraph and Lie Detection*, National Research

Concealed Information Test[71] (Guilty Knowledge Test) and Peak of Tension Tests[72] are adopted. The subject has to give "yes" or "no" answers to the questions and the physiological measures corresponding to the answers are measured simultaneously.

#### *2.2.3.3 Post Test Phase*

In this phase, the examiner analyses the collected physiological data and formulates the opinion about the test results. National Research Centre, in its project report states that responses[73] as indicated in the Polygraph charts are scored either as NR ( no response), or R ( response) or D ( doubtful response). NR means no changes are observed in Polygraph tracing while answering a particular question, R means that marked changes are observed in Polygraph tracings while answering that particular question. D means that observable changes occurred in Polygraph tracing while answering that particular question which cannot be ignored. Modern Polygraphs use computer programming in recording the physiological data.

The analysis of the nature of Polygraph Test reveals that the test is non invasive in nature. The subject is not making any statement. Though "yes" or "no" answers are given by the subject, those answers are not taken into consideration in arriving at the results of the test. Only the physiological parameters which are elicited when the "yes" or "no" answers are given are measured.

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Council of the National Academics, 2003, pp.255-257 available at http://www.nap.edu/catalog/10420/the-Polygraph-and-lie-detection (accessed on 06/06/2013).

70. In the Directed Lie Test, the issue of standardization in control question is addressed. The examinees will be asked to answer 'no' to these questions. The rationale is same as that of control question technique and the criticism other than standardization still remains. See *ibid*.
71. In Guilty Knowledge Test, it is tested whether the examinee possess knowledge about a particular crime which they do not want to reveal. For example, if an examinee had killed a person with a knife and if he shown different weapons including the one he used for killing, he will surely recognise this knife though he may deny his involvement in crime. It is assumed that this guilty knowledge would result in heightened physiological arousal, which would be detected by Polygraph. *id*.at p.253.
72. Peak of Tension Test is similar to the format of Concealed Information Test. But it is different from it, in the sense that questions are asked in an easily recognised order. A guilty examinee is expected to show a pattern of responsiveness that increases as the correct alternative in the question sequence approaches and decreases when it passed. *ibid*.
73. s*upra* n. 61 at pp.70-71.

### *2.2.4 Criticisms*

Most of the criticisms against this test are mainly with respect to its use in employment settings than in criminal justice settings. However some common criticisms are also there.

The very theoretical basis of Polygraph Test is challenged by many scholars.[74] The theory that, it is the fear of being detected for lying which causes change in the physiological measures in the test, is itself criticised as a flawed one. Physiological changes may also occur due to several other factors like nervousness, anxiety, fear or other emotions or memory hardening[75]. The mere fact that he got himself involved in a criminal case or even the uneasiness caused due to hooking up with the machine or fatigue or the mental state like depression or hyperactivity of the subject may affect the results of the test. It is also stated that the test has little impact with respect to hard hearted criminals.[76]

The accuracy of recordings of physiological measures, fitness condition of the machine and the competency,[77] subjectivity and psychology [78] of the examiner also would affect the results of the test. It is also criticised that the time lag between the happening of the event and the conducting of the test also would affect the efficacy of the results as memory of the person fades with the passage of time which may affect the results of the test.[79] False positives and false negatives are raised as other criticisms.[80] False admissions or confessions because of these tests are also raised as issues.[81]

74 . Jerome H Skolnick, s*upra* n. 4 at p.706.

75. It is the process by which the subject has created and consolidated false memories about a particular event which is usually common with respect to recollections of traumatic events. In fact in these cases the subject may not know whether he is telling the truth or he is lying, which would affect the readings in the graph and the results.

76. Polygraphy has also been faulted for failing to trap known spys such as double-agent, Aldrich Ames who passed two Polygraph tests while spying for the Soviet Union. See A.R. Lakshmanan, "Welcome Verdict But Questionable Rider," The Hindu, July 9, 2009, available at http://lawyersupdate.co.in/LU/1/257.asp (accessed on 28-07-2017).

77. Jerome H Skolnick, s*upra* n. 4 at p.706.

78 . *id.* at p.711.

79 . *supra* n. 69.

80. A false positive occurs when the results indicate that the person is deceptive though he might have answered truthfully and conversely false negative is that the results would indicate that the subject is truthful though he might have given deceptive responses. False positive would certainly put the liberty of the person in jeopardy. Similarly false negative would result in violation of rights of victim and the public.

81. *supra* n. 61 at p.28.

Another important criticism is the use of countermeasures.[82] Lack of validity and reliability of the test is also raised as another major issue. Even the validation studies on Polygraph Testing had been criticised.[83] It is criticised that these scientific tests conducted in laboratories are based on mock crime scenario. Hence they could not be relied on as they show inflated results.[84] Field studies are also criticised, especially regarding their quality.[85] Apart from that, the test is also criticised as violating human rights like right to personal liberty, privacy, self-incrimination, right against torture etc. It is also criticised that the test violates exclusionary rules of evidence.[86]

## 2.3 Voice Tests

Two tests which are analyzed in this study based on voice as medium are Psychological Stress Evaluator and Layered Voice Analysis Tests.

### *2.3.1 Psychological Stress Evaluator: Working of the Test*

The test records the emotional stress variations of the person when he was being interrogated. During the test, well organised simple questions are put to the accused/suspect. Different questioning techniques are used. The presumption is that the when suspect tells lies, marked changes would occur in the graph. The voice are intermingled and recorded on the magnetic tape recorder. The tape is fed into Psychological Stress Evaluator which detects whether there is stress or not which could be verified again.[87]

### *2.3.2 Layered Voice Analysis: Theoretical Aspects*

As stated in the inventor's website, human speaking mechanism is one of the most complicated procedures that take place in a human body requiring the coordination of number of muscles and physical apparatus.[88] Initially the brain

82. *supra* n. 69 at p.216. These are the techniques deliberately used by the subjects to deceive the examiners.
83. *ibid*.
84. *ibid.*
85. *ibid*.
86. Like violation of opinion rules. This aspect is analysed in detail in forthcoming chapters.
87. *supra* n.3 at p.537.
88 Nemesysco, Voice Analysis Technologies, *White paper on Layered Voice Analysis (LVA) Technology*, available at http://www.nemesyscoservicecenter.com/pdf/LVA%20-% 20Technology% 20White%20Paper.pdf (accessed on 26/09/2017).

apprehends about a given situation and also the possible implications about whatever will be said by a person.[89] The brain closely monitors all the procedures that take place when sound is emitted. It also ensures that the sound which is emitted is what was intended, is intelligible and also at a volume that it could be heard by the intended listener.[90] Because of this constant cerebral monitoring, every event which passes through the brain would leave a trace on the speech flow, which is manifested in the vocal wave form.[91] Layered Voice Analysis Test utilises a wide range spectrum analysis in order to detect minute, involuntary changes in the speech waveform.[92] The tests thus detects the anomalies in the brain activity and classify them as stress, excitement, deception and other varying emotional states.[93] Thus, by identifying actual emotional state behind the speech, this test gives relevant information at a quick pace. The test, thus, provides a proper lead to the investigator. It is also pertinent to note that LVA technology ignores the specific content of the speech i.e. what a subject is saying, but only focuses on the changes in the brain activity which are reflected in the voice.

#### *2.3.2.1 Working of Layered Voice Analysis Test*

The term "Layered Voice" indicates that the test uses several different approaches and analytical models to reach conclusion based on a layer upon layer structure.[94] Various modes of operation[95] of this test include, online mode which analyses the conversations as they are happening in real time, the off line mode using recorded data from any source like tape, phone, CD etc., the investigation mode, the tape recorder mode and the cassette recording wizard.[96] In the Investigation mode, a full professional Polygraph like system, utilising all known Polygraph techniques in a series of "yes/no" questions are used.[97] The test also has pre test interview, in which the interviewer clarifies the issues for which the investigator is conducting the

89 *ibid.*
90 *ibid.*
91 *ibid.*
92 *ibid*.
93 *ibid*.
94 *ibid.*
95 For detailed analysis, see, *supra* n.3 at p539-542. In this book Satyendra, actually speaks about Tipi.6.40.In the inventors website LVA 6.50 is discussed.
96. *ibid*. See also, Anusree.A, "Forensic Psychology Tests in Criminal Investigation: Need for a Comprehensive Legislation," Vol.1 (3), International Journal for Research in Law, April 2016, pp.174-193 at p.179.
97. *supra* n. 3 at p. 540-541.

test.[98] The analysis process of the LVA Test consists of several steps and the test helps in investigation by enabling effective decision making process, based on any available audio data.

### *2.3.3 Psychological Stress Evaluator and Layered Voice Analysis: Major Criticisms*

Most of the issues with respect to Polygraph, like theoretical flaws, subjective interpretation etc., are equally applicable in the case of PSE and LVA. However these tests have some additional issues. Both LVA and PSE examination could be conducted even without the knowledge of the subject and hence the subject may not even know that his rights are violated.[99]

Regarding PSE, it is argued that deception need not produce stress. It is also argued that there is no evidence that micro tremors would affect voice. [100] Thus the theoretical basis itself is questioned.[101] It is also criticized that there is no published research work showing the validity of these tests.[102] It is also stated that these machines perform only at chance level when tested for their reliability.[103] There are also disputes as to subjective nature of the test and it is also pointed out that the quality of the voice recorded would also affect the test results.[104]Apart from the above criticisms, there are also other legal, constitutional and human rights issues revolve around the tests.

However, the nature of all the voice tests reveals that, they are non-invasive in nature. The tests may be done even without the knowledge of the person who is subjected to the tests. Though the person makes statement, the content of the statement is irrelevant.

98 . *ibid.*
99. Deborah Lewis Hiller, "The Psychological Stress Evaluator: Yesterday's Dream - Tomorrow's Nightmare," Vol.24, Cleveland State Law Review, 1975, pp.299-340 at p.334.
100. Harry Hollien and James D. Harnsberger, "Assessing Deception by Voice Analysis Part I: The CVSA," Vol. 5(2), Investigative Sciences Journal, July 2013, pp.1-19 at p. 4, available at www.investigativesciencesjournal.org/article/download/12020/8179 (accessed on 22/06/2015).
101. *ibid.*
102. *ibid.*
103. *supra* n.57 at p.169.
104. Michael P. Kradz and Dr. John C. Bartone, *Investigative Proof of the Reliability and Value of the Psychological Stress Valuator in Science, Medicine and Law*, The American Health Research institute, Virgina and ABBE Publishers Association of Washington, USA, (1st edn., 1981), pp. 5-13, available at http://www.dektorpse.com/Kradz-Book.pdf (accessed on 29/08/2017).

## 2.4. Neuro Imaging Tests

Main Brain Imaging tests which are used in Criminal justice system are FMRI[105] based test and Electro Encephalograph based test. EEG based test is used in Brain Fingerprinting in US and Brain Electrical Oscillation Signature Profiling test[106] in India.

### *2.4.1 FMRI Technique in Criminal Justice*

FMRI[107] is used in criminal investigation in two ways. One is similar to the manner in which ordinary Polygraph may be used. Secondly, it could be used to read information from the brain.[108] When we consider the first way in which FMRI is used, the test work on the assumption that different areas of the brain will be active when deliberate deception is made compared to when a person tells a truth.[109] Though it may be stated that the exact regions which were activated during lying varied from study to study, the common theory is that when a person tells a lie it requires greater input from the executive regions of the brain.[110] This study mainly focuses on the use of the test in the first way. The test works like Polygraph. But in this test the brain activity is measured when the accused is confronted with the stimuli.[111]

### 2.4.2 *Brain Fingerprinting Tests: Theoretical Aspects*

This test depends on electrical activity in the brain. If we place one electrode on the scalp of a person over the brain and another on relatively electrical neutral part

105. Herein after referred as Functional Magnetic Resonance Imaging.
106. Herein after referred as BEOS Test.
107. For detailed discussion, see, John Danahar, "Scientific Evidence and the Criminal Law: Lessons From Brain-Based Lie Detection," Judicial Studies Institute Journal, (2010), pp.1-37 at pp.15-17, available at http://www.academia.edu/1133692/ (accessed on 31/01/15). What FMRI detects is the subject's decision to lie. As the person cannot control his cerebral activity to avoid detection, issue of countermeasures won't be there. FMRI Test is painless and the subject of FMRI lies down on the table, which would then slide into a hollow circular casing that houses magnet. Though the subject may have to lye still during the actual screening, the procedure is not painful or invasive. It does not have any knowable or foreseeable or direct health risk. But is very expensive and time consuming.
108. Sean Kevin Thompson, "The Legality of the Use of Psychiatric Neuro Imaging in Intelligence Interrogation," Vol.90, Cornell Law Review, 2005, pp.1601- 1637 at p. 1602.
109. *ibid.*
110. See Michael S. Pardo, "Neuroscience Evidence, Legal Culture, and Criminal Procedure," Vol. 33, American Journal of Criminal Law, 2006, pp. 301-337 at pp.307-310. He discussed four published works in his article. Those studies have shown that there is increased activation in the brain during lying.
111. *supra* n.3 at p.222.

of the head like ear lobe, an electrical voltage which varies as a function of time could be detected. This time variant function is known as brain wave and this is depicted by an EEG monitor. The brain wave is continuously active and is continuously generating, but the presentation of a discrete stimulus would result in the elicitation of a brief change in the wave pattern usually stated as " blip" in the pattern of brain wave which are being recorded. This is known as event related potential. One such event related potential is P300. P300 waves would be elicited when a subject recognizes a thing even if he denies that fact. If P300 is elicited in response to targets, it could be inferred that the suspect has knowledge which would link him to a crime.[112] This principle is applied in Brain Fingerprinting. But here it is "Memory and Encoding Related Multifaceted Electroencephalographic Response"[113]which is similar to P300 is used.

#### *2.4.2.1 Working of Brain Finger Printing Test*

In this test, the suspect has to wear a special head band containing electrodes and sensors. Then he would be seated in front of a computer screen and he watches a visual presentation of the stimuli. He had to respond by clicking to one of the mouse buttons when words, signs etc. flashes before him. In this test, the subject is not required to give any verbal answers. The familiarity is investigated using three types of stimuli viz., probes, irrelevant and targets.

The probes are that information which are relevant to the crime and would be known only to the suspect who was actually involved in it. This information is not available from any other source. Targets are crime related information which are arbitrarily selected and is made known to all the suspects. Irrelevant are those which are not relevant to any one regardless, whether innocent or guilty. The brain wave response with respect to target would form the base line measurement against which other responses are compared. The test predicts that the target would elicit a MERMER in all suspects as it was intentionally made known to all of them. The probes would elicit MERMER wave only in those suspects who are actually involved

112. Dickson K & McMahon M, "Will the Law Come Running? The Potential Role of "Brain Fingerprinting" in Crime Investigation and Adjudication in Australia," Vol.13, Journal of Law and Medicine, 2005, pp. 204-222, at p.208.
113. Herein after referred as MERMER. For detailed discussion of working and theory of Brain Finger Printing Test, see *ibid.* See also, *supra.* n.3 at pp.320-321.

in the crime. Irrelevant would not elicit response in any person. When the suspects MERMER wave response for probes mimics their MERMER wave response for targets, an information present determination is made. This means that the subject knows and recognises all the crime relevant probes showing his awareness of the crime relevant information.

When the neural response to probes is indistinguishable from that of irrelevant; information absent determination is made. This means that the subject do not have any information about the crime. In some cases the result may also be "indeterminate" when statistical value has fallen below the threshold level. This means that data is insufficient to make a decision. Thus by comparing the responses to different stimuli, the test mathematically computes whether 'information present' or 'information absent'. The results are determined mathematically and do not involve the subjective judgment of the examiner.

### *2.4.3 BEOS Test in India: Theoretical Aspects*

This test is developed in India.[114] There are several arguments for and against the test. It has come to be known that Central Government has a proposal to start BEOS Tests in all Central Forensic Science Laboratories in India.[115]In forensic set

114 . It is stated that Dr. C.R.Mukundan had designed a special software called "Brain Electrical Activation Signature Profiling." The details of this test including its development in India is discussed in detail in the Research Project of National Research Center. *see supra* n. 61 at pp. 92-104. In this work it is stated that it was in *Abhya* case, the test was first conducted. (See, *Sr Sephy* v. *Union of India*, Bail Appl..No. 7311 of 2008,decided on 01-01-2009, available at https://indiankanoon.org/doc/1483643/ (accessed on 27/09/2017). In *State of Maharashtra* v. *Sharma*, C.C., No. 508/07, decided on June 12, 2008, available on https:// lawandbiosciences. files.wordpress.com/2008/12/beosruling2.pdf (accessed on 15/02/2015), an accused was convicted on basis of Brain Scan Evidence. In 2008, a panel in National Institute of Mental Health and Neuro Science (NIMHANS) had submitted a report that the use of brain scans in criminal cases is unscientific. See Naveen Ammembala, "Panel Debunks Brain-Mapping," Express Buzz, November13, 2008, available at www.expressbuzz.com. (accessed on 15/11/2015). The committee had stated that there are many variables like heartbeat, body temperature, menstrual cycles induced fatigue etc. which would affect the validity and the conclusiveness of the test. However Research Project, Technology Information Forecasting and Assessment Council- Directorate of Forensic Science Study Research Project, *Normative Data For Brain Electrical Activation Profiling*, Department of Science and Technology, Govt of India, New Delhi, March 2006-2008, p. 70 has indicated that the test can be used as a valid scientific test for forensic purpose. See also, Puranik, D.A *et. al*., "Brain Signature Profiling in India: It's status as an Aid in Investigation and as Corroborative Evidence – As Seen From Judgments," ( Paper Presented at the Proceedings of XX All India Forensic Science Conference, Jaipur, 15 – 17 November,2009), pp. 815 – 822, available on http://forensic-centre.com/wp-content/uploads/2013/07/ (accessed on 03/02/2015).

115. Presently FSL's at Gandhi Nagar ( Gujarat ), Bangalore ( Karnataka) and Mumbai have BEOS Test. The Central Government has plan to set up 3 Central Forensic Science Laboratories at

up, this technique is used to identify the presence of experiential knowledge[116] in the person who has committed the crime. The theoretical basis is that, knowing and remembering are two neuro cognitive processes. Knowing refers to the cognitive process of recognition with or without familiarity. [117] Remembrance is the neurocognitive process of bringing personal past to the present.[118] The remembrance thus involves personal experience of an individual, gained by personal participation. [119] BEOS Profiling Test does not actually measure conceptual knowledge.[120] But it measures, the remembrance of experiential knowledge.[121] The electrical activity related to remembrance is called the signature of the experience.[122] The process actually involves a retrieval of the experiential knowledge. [123] The signature will be present only if a remembrance can be evoked by the specially designed probes.[124] Absence of experiential knowledge results in absence of the signature.[125]

#### *2.4.3.1 Working of BEOS Test*

During the test [126] the subject is hooked up in a quantitative electro encephalogram fitted with a cap of 32 sensors. He needs simply sit with his eyes closed and listen to a series of a statement. The subject is not required to make any verbal responses. The statements read out to the individual are referred to as probes. The probes which are presented as statements are expected to function as a trigger for provoking the remembrance and associated awareness as to experience. Probes fall into three categories: neutral, control and relevant (Target). Neutral probes

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Pune, Bhopal and Guwahati and also to establish BEOS technique in these laboratories and also in FSL's at Chandigarh, Hyderabad and Kolkata. "City's Forensic Dreams to Come True," Pune Mirror, March 18, 2015, available at http://www.punemirror.in/pune/civic/Citys-forensic-dreams-to-come-true/articleshow/46600474.cms (accessed on 1/12/2015).

116. Experiential knowledge is facilitated by awareness of contextual details and emotional arousal if present. See, Puranik, D.A *et. al*., *supra* n.114.
117. *ibid.*
118. See for details, Mukundan, C.R, *Brain Experience: Neuro Experiential Perspectives of Brain-Mind*, Atlantic Publishers, New Delhi, (2007).
119. Puranik. D.A *et.al*, *supra* n.114.
120. *ibid.*
121. *ibid.*
122. *ibid.*
123. *ibid.*
124. *ibid.*
125. *ibid.*
126. Working of the test is explained in *supra* n.61 at pp. 96-102 and Technology Information Forecasting and Assessment Council (TIFAC), *supra* n.114.

establish the base line and it may or may not evoke experiential knowledge;[127] control probes are related to personal information and are supposed to evoke experiential knowledge.[128] The relevant, relates to the case under investigation.[129] The computer based BEOS system compares the electrical activity in response to the relevant probes against the individual base line.[130] It is claimed that BEOS system is able to detect and differentiate between electrical output of the brain that represents conceptual knowledge and experimental knowledge.[131] In the report, experiential knowledge, which is the memory of performing the action, is reported.[132]

### *2.4.4 Neuro Imaging Tests: Criticisms*

Generally the criticisms are that the tests violate human rights and also that they are not reliable and do not satisfy *Daubert*[133] standards as to the admissibility.

#### *2.4.4.1 Brain Fingerprinting*

Main criticism[134] is that it is based on uncertain premise and violates mental privacy of the subject. It is difficult to distinguish between actual perpetrator and witness. If the person who is subjected to this test already had exposure to the material probes either through media reports or through investigating officers etc., there is no utility in conducting the test. Another criticism is that in the case of subjects suffering from amnesia or memory hardening, the test results would be misleading.

127. Like red rose.
128. Puranik. D.A *et.al*, *supra* n.114.
129. *ibid.*
130. *ibid.*
131. *ibid.*
132. *ibid.*
133. See *infra* chapter VI.
134 A former Director of a Forensic Science Laboratory, Sri. P. Chandrasekharan stated that the very name "Brain Fingerprints "is itself a misnomer. Fingerprints are the reliable means of personal identification based on finger ridge patterns. The basic principles like individuality, permanence and systematic classification, which are the features of finger print identification, are not applicable to brain waves. The brain wave is based on P300 complex, which could be measured. The problem with this test is that, similar brain wave responses are also produced by all witnesses who have knowledge about the crime. Thus, it could not be said that this test matches the evidence from the crime scene with the knowledge stored in the brain of the perpetrator. Hence the author states that, it is wrong to compare the test with conventional fingerprinting which matches the fingerprints in the crime scene with that of the perpetrator or with that of DNA fingerprinting, which matches biological samples from the crime scene with DNA in the body of the perpetrator. Sekharan P.C, "Truth about Truth Detecting Technique," Journal of Forensic Research, Special issue, 2013, pp.1-11 at p.6, available at https://www.omicsonline.org/truth-about-truth-detecting-techniques-2157-7145.S11-002.php?aid=10721 ( accessed on 28/09/2017).

This test is also criticised as dependent upon examiner bias and skill, as the examiner has to determine the subject's base line MERMER through a series of preliminary questions.[135] If this is not done carefully, the subject could be unconsciously exposed to sensitive information which could later generate a MERMER when guilt implicating stimuli are presented.[136] The difficulty in designing preliminary questions also poses another issue especially when it is a stake matter and in short time frame information is required. Finally lack of validation of the test is also considered as another issue which affects the admissibility of the test results during trial.

#### *2.4.4.2 BEOS Test*

With respect to BEOS Test, most of the issues like uncertain premise, issue as to mental privacy, self-incrimination, Inherent difficulty in designing appropriate probes, difficulty in case of subjects suffering from amnesia or memory hardening , misleading test results etc., are same as that of Brain Finger Printing. Reliability of the test is also challenged and it is also criticized that this test fails to meet *Daubert* criteria as to admissibility standards.

#### *2.4.4.3 FMRI Test*

Main criticisms are with respect to accuracy and reliability of the test and lack of validation studies. It is also criticised that the quality of the data depends on the cooperation of the subject, as MRI scanner is particularly sensitive as it would require severe head restraints for successful use on a non cooperative subject.[137] In British Psychology Society Report, 2004, it is stated that those parts of brain which are more active during deception are also active during non-deception activities.[138] Thus issues of false positive errors may occur in the case of FMRI also. Moreover the test is expensive and also time consuming. There are also human rights issues like violation of privilege against self-incrimination, privacy etc.

135. Brian Reese, "Using FMRI as a Lie Detector – Are We Lying to Ourselves?," Vol.19(1), Albany Law Journal of Science and Technology,2009,pp.206-230 at p. 209.
136 . *ibid*.
137 . John Danaher, "The Future of Brain-based Lie Detection and the Admissibility of Scientific Evidence," Vol. 21(4), Irish Criminal Law Journal, 2011, pp.67-76 at p.72.
138 . *supra* n.63.

The analysis of the nature and working of FMRI, Brain Fingerprinting and BEOS Tests reveal that the tests are generally noninvasive. As far as FMRI is concerned, there is head restraint and the test works like ordinary Polygraph. When Brain Fingerprinting and BEOS Tests are considered, the nature of the tests is the same. In Brain Finger Printing, the subject has to respond by clicking the mouse, though it is irrelevant in the determination of test results. In BEOS, the subject need not make any response. Thus the nature of the tests varies, though they belong to the same category.

## 2.5. Narco Analysis

The term Narco Analysis was coined by Horseley and was derived from a Greek word "narkc" which means numbness, anesthesia or torpor.[139] This technique uses psychotropic drugs particularly barbiturates which induces a "trance like state" in which mental elements with strong associated effects come into the surface.[140] This can be exploited by the therapist.

### *2.5.1 How the Narco Analysis Test is Conducted*

In this test, the subject is administered with sodium pentothal, sodium thiopental and barbiturate or even a mixture of these drugs. The test is conducted by mixing 3 grams of above chemicals dissolved in 3000 ml of distilled water. The expert then injects the subject with this solution under the controlled circumstances in a laboratory or in an operation theatre of a hospital. The dosage depends on the subject's age, sex, health and physical condition. The questions are asked in the stage of hypnosis. In that stage, the subject cannot speak on his own initiative, but could answer only specific but simple questions on giving some suggestions.

In fact, lying is more complex phenomenon than telling the truth. A person is able to lie by using his imagination. When a person tells lies, his brain filters his

139. *supra* n. 34. In this work, it is stated that in Webster's dictionary, the word Narco Analysis is explained as coined from Narco + Analysis. It means psychoanalysis using drugs to induce a state akin to sleep. This test is also called truth serum test. But it always opined that the term truth serum is misleading, as the drugs used in this test has nothing to do with truth. J. MacDonald, "Truth Serum" Misleading," Journal of Criminal Law, Criminology, and Police Science 46 (1955) 259 as cited in Charles E. Sheedy, "The 'Truth Drug' in Criminal Investigation," Vol.20(3),Theological Studies, September 1959,pp. 396-408, at p. 402.

140. *supra* n.3 at pp.446-449.

thoughts and decides as to what is to be revealed or concealed. Lying is mediated through GABA (Gamma Amino Butric Acid).The sodium pentothal will have inhibitory effect on GABA. This means that, the drug will work in such a way as to inhibit the thought filtration process of the brain so that the person will be unable to manipulate the answers. He will be answering spontaneously and will not be able to lie.

When the drug [141] is administered intravenously, the subject ordinarily descends into anesthesia in four stages. They are 1. Awake stage, 2. Hypnotic stage 3. Sedative stage 4. Anesthetic stage.[142] The person becomes more lucid usually at the second stage of anesthesia, in which he would be in the stage of excitement. In this stage since GABA is inhibited by the drug, the subject's capacity to lie is reduced or removed temporarily. This stage is utilised by a well trained psychologist with carefully formulated questions so as to get the probative truth about the crime from the subject. This stage is maintained for the required period by controlling the rate of administration of the drug with the help of anesthetist.[143]

The Narco Analysis Test is conducted usually by a team consisting of one anesthetist, one physician and one clinical or forensic psychologist, a videographer and a language interpreter if needed. In India, these tests are conducted either in Forensic Science Laboratories with Operation Theatre facilities or in the operation theatres of recognised hospitals. The whole procedure is audio and video recorded. The test is conducted based on court order and the consent of the subject is also taken.

### *2.5.2 Narco Analysis: Criticisms*

Narco Analysis is criticised as unreliable and not scientifically valid. The substances used in the test like sodium pentothal, sodium amytal, scopolamine etc., do not assure the truthfulness of the information. What they actually do is to lower the inhibition and increase loquacity.[144] There is always possibility that the subject

141. Sodium Pentothal.
*142* . *Selvi v. State of Karnataka,* (2010) 7 S.C.C.263, 298.
143. *ibid.*
144. Jason R. Odeshoo, *supra* n. 41.

will not reveal any relevant information. The revelations are sometimes hallucinations, dreams or personal information unconnected with the case. The studies have also revealed that some persons are also able to retain their ability to deceive even in hypnotic stage. Hence it would require great skill on the part of the interrogator to extract and identify information which would eventually prove to be useful.

It is also important to note that some persons would be extremely suggestible to questioning. This is really an issue especially since the investigators who are under pressure to deliver results would frame questions in a manner that would prompt incriminatory responses. As the responses of different individuals are bound to vary, it is argued that there is no uniform criterion to evaluate the efficacy of Narco Analysis Test.

Inherent invasiveness of the test itself is raised as the main criticism. The impact of the drug on each individual's health varies. The quantum of drug to be injected depends on the age, sex, health etc. of the concerned persons. Excess quantity of the drug would put the subject to coma or it may even result in his death.

Thus, the working and nature of Forensic Psychological Tests reveal that, though they may be designated under same category, the degree of physical invasiveness of the tests varies. Some tests may be administered even without the knowledge of the person. But some other tests are conducted by injecting the person with antipsychotic drugs. Thus Forensic Psychological Tests may be divided into two categories based on degree of invasiveness to the body of the person subjected to the tests. Invasive test may be defined as the one in which the examiner uses instrumentation which physically enters into the body as in the case of taking blood sample. Noninvasive procedures are those which do not involve instrumentation that physically enters into the body like pressure cuff, electroencephalogram, etc. Thus all tests other than Narco Analysis Test may be referred as non-invasive tests and Narco Analysis Test may be referred as invasive test.

## 2.6. Validation Studies on Forensic Psychological Tests

Any scientific test should meet the test of validity and reliability in order to be admitted in evidence.[145] When we analyze various studies and committee reports on Polygraph, it could be seen that none of the studies have recommended for banning the test. They have only recommended for regulating it.[146] Moss Committee Report, Moorhead Hearings, National Research Committee Report 2003 etc., is worth mentioning in this regard. The National Research Committee Report 2003[147] had stated that Polygraph tests in specific incident investigation may detect deception well above chance though well below perfection. The validation studies like that of Widacki and Horvath Study, 1978[148] and the Elaad Study, 1999,[149] found that "Polygraph Test has proved comparable as an evidentiary tool."[150]

Thus the analysis of various studies and committee reports reveal that, though most of them have criticized the use of Polygraph with respect to employment setting, they seems to favor the use of the test in specific incident investigation like

145. *Supra* n. 69 at pp.29-34. In NRC report, it is stated that reliability deals with whether the test yields identical results, if it is repeated either by the researcher or by others. The validity of the test means, the degree to which the test actually measures what it is intended to measure. Validity is mainly of two types, criterion validity or accuracy and construct validity or theoretical validity. Criterion validity is the extent to which the test results correspond to truth with actual examinees. Construct validity refers to how well explanatory theories and concepts would account for the performance of a test. The strongest scientific basis for the validity of a test would come from evidence of both criterion validity and construct validity. There are two distinct aspects of accuracy, Sensitivity and specificity. Sensitivity means the test gives positive results for all the positive cases. For eg., if we take deception detection, a perfectly sensitive indicator of deception is the one which shows positive whenever deception is in fact present. This means it will not show false negative results. Specificity means the test must be perfectly specific to deception. It does not show false positive.
146. The Moss Committee in 1963, though stated that there is no lie detector human or machine, did not recommend banning the tests but regulating it. The Committee also suggested for more research, improved training for operators and also recommended it for national security investigations. See also Moorhead Hearings, *The Use of Polygraph and Similar Devices by Federal Agencies*, Hearings Before the Subcommittee of the Committee on Government Operations , House of Representatives,93rd Congress, Second Session, June 4,5 1974, available at https://archive.org/stream/use of Polygraphs 00unit/use of Poly graphss 00unit_djvu.txt (accessed on 29/08/2017).
147. Hereafter referred as NRC. *supra* n.69.
148 . 1978. The study set out to measure the validity of the Polygraph as identifier of the perpetrator when compared to handwriting analysis, eye witness identification and fingerprinting. Raymond Charles Martin, "The Application of the Polygraph in the Criminal Justice System," (Dissertation, Master of Arts, Department of Criminology, University of South Africa, 2001), pp.241-243 available at http://uir.unisa.ac.za/bitstream/handle/10500/18136/dissertation_martin_rc.pdf?sequence=1 (accessed on 29/08/2017).
149 . *ibid.*
150. *ibid*.

criminal investigation. NRC report had stated that when compared to other scientific tests in interrogation, Polygraph seems to be the most efficient one. The analysis of the studies on Polygraph reveals that in criminal investigation settings the test would be of more utility.

Regarding Validation studies on PSE, Voice Stress Analysis and LVA, the studies show a mixed response. Some studies favour [151] the tests while others are disfavoring[152] the tests. This stresses the need for more research studies in this area.

When studies on FMRI are analyzed, the validation studies show that the test has a promising future. In the studies made by Dr. Daniel Langleben and Ruben Gur of university of Pennsylvania [153] and Kozel and his colleagues has shown the effectiveness of FMRI based assessment for classifying individuals as deceptive or truthful and has high accuracy rate.[154] All these validation studies show that the test has a promising future.

Regarding validation studies on Brain Fingerprinting, researches on EEG and Event Related Potential has started since 1960's. All the studies indicate that the test is of utility in criminal justice settings, but differed in their opinion as to the accuracy rate of the test results.[155] All the studies have suggested that further improvements

151. In the few studies in which the theory behind VSA has been tested, there has generally been solid support. For example, Cestaro, V.L., "A Comparison Between Decision Accuracy Rates Obtained Using the Polygraph Instrument and the Computer Voice Stress Analyzer (CVSA) in the Absence of Jeopardy," *Polygraph* 25 (2) (1996): 117–127; and Fuller, B.F., "Reliability and Validity of an Interval Measure of Vocal Stress," *Psychological Medicine* 14 (1) (1984): 159–166, *as cited in* Justin J. Mc Shane, "Voice Stress Analysis Challenges : The Truth about Forensic Science," December 19, 2013, available at http://www.thetruthaboutforen sicscience.com/voice-stress-analysis-challenges/ (accessed on 30/08/2017).

152. At the same time there are also other studies like Kubis Report, 1973, 2008 study on drug abuse among prisoners, NRC report, 2003, which show that the tests do not have valid support. see, *supra* n.69 pp.7-8. see also Francisco Lacerda, "Voice Stress Analyses: Science and Pseudoscience," (Proceedings of Meetings on Acoustics, Acoustical Society of America, Montreal, Canada, 2-7 June**,**2013) available at http://www.ica2013 montreal.org/ Proceedings/mss/060003_1.pdf (accessed on 30/08/2017).

153. *supra* n. 3 at p.295.

154. William G Iacono & Christopher J Patrick, "Employing Polygraph Assessment, " in Irving B. Weiner & Randy K Otto, *The Hand Book of Forensic Psychology*, Wiley and Sons, New Jersy, (4th edn.,2013), pp.613-658, at p.620, available at https://archive. org/stream/ 1118348419 Psychol/ 1118348419_Psychol_djvu.txt (accessed on 19/12/2017).

155. Farwells own study in 1993 shows high accuracy rate whereas FBI study shows that it is not fool proof. In 2008, Mertens and Allen made an evaluative study on Event Related Potential (ERP) based models in applied contest. They concluded that guilty/ deceptive outcomes of ERP based detection tests are likely to be of substantial value for investigative decision making

and research may yield better results. Thus it may be stated that more research studies are required in this area so that Brian Fingerprinting will have a better utility in criminal justice settings.

Regarding validation Studies on BEOS Test, The research project[156] entitled "Normative Data for Brain Electrical Activation Profiling" which had been carried out by The Directorate of Forensic Science, Gujarat and funded by Technology Information Forecasting and Assessment Council, Government of India, for the years March 2006-March 2008, had concluded that the BEOS Profiling Test can be used as scientific aid to investigation in crime detection. The study strongly supports the forensic applicability of the test for differentiating and identifying perpetrators of the crime from innocents and witnesses. Other validation studies also are favorable to the test.[157] Thus most of the studies favour the test and the research study on BEOS Test is also progressing. Thus the validation studies on Neuro Imaging Tests reveal that in criminal investigation settings the tests would be of more utility.

Regarding validation studies on Narco Analysis, there are only few studies.[158] The studies revealed that though the test may be useful in psychiatric examinations it has doubted validity in interrogation settings.[159] Through skilful police interrogation,

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in real life cases. In 2012 Farwell himself has published a study using MERMER scoring approach and stated that the technique yielded 100% accurate classifications with no inconclusive outcomes. Other validation studies conducted by William Iacano, Rosenfeld, David Lykken, Frank Horvath, George Farwell evokes mixed response. See *supra* n.3 at pp.292-295.

156. Technology Information Forecasting and Assessment Council, *supra* n. 114 at pp.11, 70.

157. Another validation study which culminated in the awarding of PhD revealed that only an individual who had indulged in act can have the motor imagery of the same act during remembrance, whereas the individual who has only witnessed the act will not have that. The objective of that study was to validate the BEOS Test findings relating to participants and witnesses of crime in the criminal activity and also to compare the finding with Polygraph Test results using guilty knowledge or concealed knowledge paradigm used in forensic field. See Anjali Yadav, "Brain Electrical Oscillation Signature Profiling and Lie Detection: A Normative study," (Ph.D. Thesis, Gujarat Forensic Science University, 2014), pp. 128-140, available at http://shodhganga.inflibnet.ac.in/handle/10603/53304 (accessed on 30/08/2017). Another research study published in The international Journal of Indian Psychology, 157 depicted that BEOS Test is based on neuro psychology which is valid and true. See, Mr. Patel Anjan, "Neuro- Psychological Assessment of the Suspect by Applying Brain Electrical Oscillation Signature (BEOS) Profiling Test to Verify BEOS Principle," Vol. 3(2), The International Journal of Indian Psychology, April-June 2016, pp.147-154 at p.153.

158. George Bimmerle, "Truth" Drugs in Interrogation," Centre For Study of Intelligence, CIA, September 28, 1993, available at https://www.cia.gov/library/center-for-the-study-of-intelligence/ kent-csi/vol5no2/html/v05i2a09p_0001.htm (accessed on 01/10/2015).

159. For detailed discussion see, *ibid.*

same information could be obtained without drug. However there are also some of the studies which suggest that certain considerations may be made as to the possibilities of the use of the tests in interrogations.[160] Interrogator must be well aware of the problems that are involved in the tests, like suggestibility of the subject etc.[161] In fact after 9/11, most of the countries have shown a rethinking as to the use of the tests especially in terrorism related issues.[162]

Thus it may be summed up that the validation studies as to Polygraph and Neuro Imaging Tests reveal that in criminal investigation settings the tests would be of more utility. Regarding Narco Analysis, the validation studies have revealed that the test is useful in psychiatric examination and its utility with respect to its application in criminal investigation is doubtful. As far as voice tests are concerned, the validation studies show mixed response. More research studies are required. It is submitted that most of the tests are in their infancy and there is requirement for more studies so as to assert their reliability.

## 2.7 Conclusion

A perusal of the historical developments reveals that the emergence of Forensic Psychological Tests was actually proposed against the cruel, inhuman and harsh treatments in evidence collection in criminal justice system which was associated with the demonological thinking that was prevalent prior to 17$^{th}$ century. The development of these tests is intended to make criminal interrogation more scientific and ordained with psychological insight. However, main allegations against these tests are their impact on human rights of the subjects.

It is found that, though all these tests are designated as Forensic Psychological Tests, the degree of physical invasiveness varies with the nature of the tests. For instance, in Polygraph, only physiological measures are taken. The subject has to cooperate by answering "yes" or "no" which is irrelevant in the determination of test results. There is no recording of statement. In the case of LVA and PSE, there is absolutely no invasiveness. The tests may be conducted even without the

160. Brussel, J. A., Wilson, D. C., Jr., and Shankel, L. W., "The Use of Methedrine in Psychiatric Practice." Psychiat. Quart., 1954, 28, 381 - 394. Cf *ibid.*
161. *ibid.*
162 . Jason R. Odeshoo, *supra* n.41.

knowledge of the subject. Though he makes the statement, the contents of the statement is irrelevant to determine the results of the test. In BEOS Test, the subject just has to sit with his eyes closed and eyes open, whereas in Brain Fingerprinting the subject answers by clicking the mouse. But it is irrelevant in the determination of test results. In FMRI Test, though there is no physical invasiveness, there may be an element of discomfort as his head may be restrained for some time. Here also he does not make any statement. In the case of Narco Analysis, anesthetic drugs are injected and the subject is in semiconscious condition. He makes statement when he answers questions. Thus degree of bodily invasiveness of these tests varies with the nature and working of the tests. Hence the tests are divided into invasive and noninvasive tests based on the degree of invasiveness into the body of the subject. Thus it may be stated that whether a Forensic Psychological Test violates human rights may be a fact specific and technology specific question and *per se* banning of the tests may be disadvantageous in the interest of criminal justice system.

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# Chapter -III

# LEGAL STATUS OF FORENSIC PSYCHOLOGICAL TESTS: NATIONAL AND INTERNATIONAL PERSPECTIVE

This chapter analyses the present legal status of Forensic Psychological Tests in different countries in the world where the tests are prominent in criminal investigation as well as in trial. The object is to analyse the legal safeguards taken to ensure the rights of the accused, in those countries. The chapter also peruses the position in India. In order to study the Indian position, an analysis of information obtained under the Right to Information Act, 2005 is made.

## 3.1 Establishment of Forensic Psychology Division and Development of Forensic Psychological Tests in India

The interest for the use of tests like Polygraph was first shown by the investigating officers in India in 1948 in connection with investigation of murder of Mahatma Gandhi.[1] The test was later used in several cases, but, its use was almost suspended till late 1960's.[2] As stated by S.L Vaya in her article,[3] the beginning of the development of Forensic Psychological Tests in India was made in 1968 with the establishment of Lie Detection Division in Central Forensic Science Laboratory,[4] Central Bureau of Investigation[5], Delhi, by appointing a psychologist.[6] Because of the publication made by CBI officials in their magazine "CBI Bulletin," other State Forensic Science Laboratories also began to establish Lie Detection Division in forensic set up. Later following CBI pattern, in Gujarat State Forensic Science

1. L. V. Omelchuk and A. V. Linnik, "Use of a Polygraph in Criminal Legal Proceedings of Foreign Countries: Historical and Legal Aspect," Vol. 1(2), International Legal Bulletin, Collection of Scientific Papers of the National University of the State Tax Service of Ukraine, 2015, pp.158-164 at p.162, available at muvnudp_2015_1_27%20(4).pdf (accessed on 31/08/2017).
2. *ibid.*
3. Dr. S.L. Vaya, "Forensic Psychology in India," Vol.1 (1), International Journal on Police Science, July 2015, pp.29-34 at p.29. The detailed discussion on the evolution of Forensic psychology and the tests are made in this article.
4. Herein after referred as CFSL.
5. Herein after referred as CBI.
6. *supra* n. 3.

Laboratory, Ahmadabad, three full time psychologists of different cadres were appointed to start lie detection unit. Thus a deviation was made from general trend wherein physicists or chemist or biologist were appointed to handle Polygraph Test in Gujarat Forensic Science Laboratory.

The second step in development of Forensic Psychological Tests in India began, with the establishment of Forensic Psychology Division in Forensic Science Laboratory, Gujarat in 1988 by renaming Lie detection Division in the Laboratory in Gujarat.[7] Necessary amendments were made in Gujarat Police Manual 1975 for conducting the tests.[8] It is pertinent to note that with the emergence of Forensic Psychology Division, clinical psychologists providing services to civil and criminal cases were empowered with administrative authority as a forensic psychologist. The integration of clinical interview with findings of psychological assessments had yielded satisfactory aid to investigating officers.

However increasing work load and limited man power led to narrow down the focus of investigative psychology with need based approach to develop new technologies, whenever requisition comes from investigating officers. Thus, it may be stated that all the Forensic Psychological Tests like Psychological Assessments, Forensic Hypnosis, Forensic Statement Analysis, Polygraph Test or Narco Analysis Test have developed as per the requirement of the case and the need for the investigation. Procedure Manuals were also prepared as guidelines for crime investigations. As a next step, at the national level, for the growth of the field, a provision to include "Forensic Psychology" as a discipline in a Forensic Science Laboratory[9] set up was made in National Accreditation Board for Testing and Calibration Laboratories.[10] By 1980's five states had set up Forensic Psychology Division in their state laboratories. Presently 13 Forensic Science Laboratories and 1 Central Forensic Science Laboratory conduct Forensic Psychological Tests.[11] Present

7 . *ibid.*

8. The provision states that in important cases, where no direct evidence is available and if it is suspected that witnesses or suspects are suppressing the truth, the investigating officer could avail the facility of scientific techniques of interrogation of such persons through lie detection, hypnosis etc. at the Forensic Science Laboratory in their Forensic Psychology Division and other scientific means available with them. Gujarat Manual Vol. 3 chapter 5, R 170(6). See *ibid*.

9. Herein after referred as FSL.

10. *supra* n. 3.

11. Herein after referred as RTI. As per the information obtained by the researcher by filing application under The Right to Information Act, 2005.

Government Policy also seems to be in favour of establishing Forensic Psychology Divisions and developments of Forensic Psychological Tests in the Forensic Science Laboratories in the Country.[12]

## 3.2 Present Status of Forensic Psychological Tests in India

To get information as to present status of Forensic psychological Tests, an application was filed under the Right to Information Act, 2005[13] to all the FSL's in India. The list and address of the CFSL's and State Forensic Science Laboratories were obtained from the website of Directorate of Forensic Science Service.[14] Information sought, included the number of cases the laboratories have examined from the year 2007- 2015. This is to analyse whether cases are coming for these tests after *Selvi v. State of Karnataka* decision.[15] Whether the request for conducting of these tests are showing increasing/ decreasing trend. The other information pertain to nature of the tests conducted in the laboratory, safeguards taken while conducting the tests, ascertaining the reasons for the delay in conducting the tests, the qualification and competency of the examiners and the feedback mechanism.

12. Sandip Dighe, "City's Forensic Dreams to Come True," Pune Mirror, March 18, 2015, available at http://punemirror.indiatimes.com/pune/civic//articleshow/46600474.cms (accessed on 04/10/2017). It was reported that Central Government has approved a plan which proposes to establish Forensic Psychology Division in all CFSL's in the country having Brain Finger Printing facility. See, Dr. Gopal Ji Misra and Dr. C. Damodaran, *Final Report on Perspective Plan for Indian Forensics***,** Ministry of Home Affairs Government of India New Delhi, July 2010, p.40, available at http://www.mha.nic.in/hindi/sites/ upload_files/mhahindi /files/pdf/IFS%282010%29-FinalRpt.pdf (accessed on 04/10/2017). The Committee had recommended for further development of Forensic Psychological Tests. Same view was taken in Prof ( Dr.) N.R. Madhava Menon**,** *Report of the Committee on Draft National Policy on Criminal Justice* , July, 2007, pp.34-35. In order to improve scientific investigation, Malimath Committee, had recommended that a Polygraph machine should be provided in each district and that the regular use will obviate the need for extra-legal methods of interrogation. See also, Dr. Justice V.S. Malimath, *Committee on Reforms of Criminal Justice System, Vol.1,* Ministry of Home Affairs, Government of India, , 2003, p.104.
13. Copy of the application is attached as Appendix I.
14. Directorate of Forensic Science Service (DFSS) formulates plans, policies and legislations to regulate and promote quality, capacity and capability building for forensic services in the country. DFSS is under the direct charge of Ministry of Home Affairs, Union of India. All the CFSL's and Government Examiner of questioned documents are under are direct control of the Directorate. The State FSL's are under the control of their respective home ministries. DFSS provide technical support to these laboratories. See Charter of Duties of DFSS, Ministry of Home Affairs, Government of India, Extract from Gazette of India, Part 1-Section 1, December18, 2010, available at http://dfs.nic.in/pdfs/MHA%20reso lution% 20for%20 DFSS.pdf (accessed on 01/11/2017).
15 *Selvi* v. *State of Karnataka,* (2010) 7 S.C.C. 263. The Supreme Court considered the constitutional validity of Polygraph, BEOS and Narco Analysis test. The court held that conducting these tests without consent would violate Right against Self Incrimination under Art. 20(3) of the Constitution.

However it is pertinent to note that Directorate of Forensic Science, Gujarat, though conducts all the tests had refused to give information stating that the Laboratory does not come within the purview of Right to Information Act. Hence relevant information especially as to Layered Voice Analysis[16] could not be obtained.[17]

## 3.3 Analysis of Information obtained

### *3.3.1 Basic Information[18]*

In India, there are 6 CFSL's, 1 CFSL CBI and 31 State FSL's.[19] The State FSL's are under the administrative control of either their respective Home Department or police. The Directorate of Forensic Science Service provides technical support to these FSL's. Apart from State FSLs, most of the states have District and Mobile FSLs to cater to their service needs.[20] It is found that, out of 38 Laboratories only 14 laboratories in India have forensic psychology division. The main tests conducted in this division are Polygraph, Brain Electrical Oscillation Signature Profiling Test, [21] Narco Analysis, Psychological Autopsy, Forensic Statement Analysis, Suspect Detection System and Layered Voice Analysis Test.[22]

16. Herein after referred to as LVA.
17. Layered Voice Analysis Test, is conducted in Directorate of Forensic Science, Gujarat. As per the information provided their website and National Resource Center Report, and also by virtue of personal visit to the laboratory by the researcher, it can be stated that Gujarat laboratory conducts, Polygraph, Brain Electrical Oscillation Signature Profiling, Narco Analysis and Layered Voice Analysis Tests. See also, Parth Shastri, "Directorate of Forensic Sciences to Offer Agricultural Rural Forensics," The Times of India, January 8, 2013, available at https:// timesofindia.indiatimes.com/city/ahmedabad/Directorate-of-Forensic-Sciences-to-offer-agricultural - rural-forensics/articleshow/17932283.cms (accessed on 30/10/2017). As per the information provided in the website of CBI, the laboratory has initiated action programme for the induction of Neuro Imaging Tests and Voice Stress Tests in their Forensic Psychology Division. See for details http://cbi.nic.in/cfsl/cfsldivision.htm (accessed on 03/10/2017).As per newspaper reports, SFSL, Shimla also proposes to introduce, BEOS Test, Suspect Detection System and LVA Test in their laboratory. See, Bhanu P Lohumi, **"**Shimla Lab to Have Brain-Mapping Facility," Tribune News Service, March 12, 2017, available at http://www.tribuneindia.com/ news/himachal/ community/shimla-lab-to-have-brain-mapping-facility/376682.html (accessed on 30/10/2017).
18. The information provided by the laboratories in these aspects, are provided in tabulated form in Appendix II.
19. Directorate of Forensic Science Services (DFSS), Ministry of Home Affairs, Government of India, available at http://dfs.nic.in/sfsl.aspx as per updated on 22-3-2017 (accessed on 19-04-2017), also confirms this.
20. *ibid.* 6 CFSL's are under the direct control of DFSS, MHA, are Hyderabad, Kolkata, Chandigarh, Pune, Guwahati, Bhopal.
21. Herein after referred to as Brain Electrical Oscillation Signature Profiling Test.
22. *Annual Administrative Report*, State Forensic Science Laboratory, Himachal Pradesh, Junga, 2011-2012, p12, available at http://himachal.nic.in/WriteReadData/l892s/174_l892s/3-11901529.pdf (accessed on 03/10/2017).

CFSL CBI started Lie Detection Division in 1973. All laboratories other than Mumbai, conducts only Polygraph examination. Only Mumbai laboratory conducts Polygraph, Brain Electrical Oscillation Signature Profiling Test and Narco Analysis Test.

Lucknow laboratory started forensic psychology division in January, 2010 and Narco Analysis in 2014 and LVA in 2016**.** Though CFSL Pune, started forensic psychology division in 2011, no tests are conducted so far, due to non-availability of forensic psychologist. In CFSL Kolkata, though the instrument was purchased in 2012, it only exists for name sake and the Polygraph instrument is used to give trainings to police and judges. Hence it may be that the status of Forensic Psychological Tests in CFSL's is deplorable. Rajasthan and Bangalore FSL's have discontinued the division. However, in state laboratories, and in CFSL (CBI) the division functions effectively.

### *3.3.2 Procedure and Safeguards Taken While Conducting the Tests*[23]

The tests are mainly governed by the guidelines laid down by the Supreme Court in the *Selvi* decision,[24] National Human Rights Commission Guidelines[25] and

23. The information given by the laboratories in this regard is in provided in Appendix III.
24. These guidelines are applicable to Polygraph, BEOS and Narco Analysis Test. The guidelines are
    1. No lie detector test should be administered except on the basis of consent of the accused. An option should be given to the accused as to whether he wishes to avail the test.
    2. If the accused volunteers a lie detector test, he should be given access to lawyer. The physical, emotional and legal implication of the test should be explained to him by the police and his lawyer.
    3. The consent should be recorded before the judicial magistrate.
    4. During the hearing before the magistrate, the person alleged to have agreed for the test should be duly represented by a lawyer.
    5. At the hearing the person in question should be told in clear terms that the statement that is made shall not be confessional statement to the magistrate but will only have a status of a statement made to the police.
    6. The magistrate shall consider all factors relating to the detention including the length of detention and the nature of interrogation.
    7. The actual recording of the lie detector test shall be done by an independent agency (such as a hospital) and shall be conducted in the presence of a lawyer.
    8. A full medical and factual narration received must be taken on record.
25 . Hereinafter referred as NHRC. NHRC Guidelines on Administration of Polygraph/Lie Detector Test, 2000 were issued by NHRC while disposing the petition filed by Sri. Inder P Choudhrie who alleged that he had been subjected to Lie Detector Test without consent. *Selvi* guidelines are actually NHRC guidelines. NHRC guidelines were confined to Polygraph Test. The court extended these guidelines to Narco Analysis and BEOS Test also. For details,

also as per the Laboratory Procedure Manuals.[26] Apart from these, the provisions of the Constitution of India, The Code of Criminal Procedure, The Indian Evidence Act and The identification of Prisoners Act also govern the administration of the tests.[27] The Forensic Bill proposed by two member committee on Perspective Plan for Indian Forensics 2010, had provisions relating to forensic psychology as well.[28] However, a Bill namely Forensic Regulatory and Development Authority Bill, 2011,[29] which was introduced, but lapsed, had no provisions relating to the field of forensic psychology or the tests. Thus presently there exists no comprehensive legislation governing these tests.

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see, NHRC, "Guidelines Relating to Administration of Polygraph Test (Lie Detector Test) on an Accused, 2000."

26 The Laboratory Procedure Manual of Forensic Narco- Analysis published by the Ministry of Home Affairs, Government of India, New Delhi, 2007 provides that Narco Analysis test is to be conducted in a suit that has facilities akin to an operation theatre. Clause 4 of the Manual provides for constitution of the team of experts as follows: Accordingly the team of experts to conduct Narco Analysis must comprise of an (i) Anesthesiologist, who has APG degree/diploma (MD/DA) from recognized medical college and experience of handling individuals for Narco Analysis is considered as desirable, (ii) a Clinical/Forensic Psychologist/Psychiatrist with M.Phil or Ph.D in either clinical or forensic psychology or MD/DPM in psychological medicine from a recognized university/institution and experience in handling individuals for various aspects of clinical/forensic psychology is considered as desirable,(iii) Supporting Nursing staff in O.T, if needed,(iv) Interpretator, if needed and ( v) a General Physician, if needed. Clause 6 provides for preparation of the subject for Narco Analysis. It states as follows.

Clause (6) Preparation of the subject for Narco Analysis.

i. Medical examination for fitness which includes routine laboratory investigations and special investigations, if necessary.
ii. Instruction to the subject to submit himself in an empty stomach for Narco Analysis.
iii. Mental status examination for mental fitness by clinical psychologists/forensic psychologist/psychiatrist." Apart from the above, The Directorate of Forensic Science, Ministry of Home Affairs, Government. of India, has setup Work Norms for all the Central and State Forensic Science Laboratories in the county. Accordingly for Forensic Psychology Division, No. of cases/exhibits to be examined per year (200 working days.) is 200 subjects/ exhibits. The detailed procedure and safeguards followed in conducting various Forensic psychological Tests including Polygraph, BEOS and Narco Analysis is discussed in S.L. Vaya, *Project Report Submitted to the Chief Forensic Scientist, Directorate of Forensic Science, Ministry Home Affairs, New Delhi*, National Resource Center for Forensic Psychology, Gujarat, (2nd edn., 2013).

27. In the wake of judicial confusion created in the light of *Ritesh Sinha* v. *State of UP,* (2013) 2 S.C.C.357, it is debatable , whether the tests could conducted under Chapter XII of the Code of Criminal Procedure. In fact even with respect to forensic science there is no legislation.

28. Dr. Gopal Ji Misra, *supra* n.12.The Forensic Bill proposed has its objective to constitute Forensic Council of India, whose function is to regulate practice of various disciplines of forensics including Forensic Psychology. The Forensic Council also has its function to lay down standards of education and training for practice and for registration of Forensic Psychologists as well.

29 . http://iafmonline.in/data/circular-notifications/FDRA-Bill-2011.pdf (accessed on 01/05/2013).

### *3.3.3 Procedure Followed if Subject is not Accompanied by Lawyer*

All the laboratories proceed with the tests, even if accused is not accompanied by the lawyer. State FSL Thiruvananthapuram takes written consent from the accused in this regard. All laboratories conduct the test as per the court orders. However the Laboratories take written consent before conducting any of the tests and the tests are not conducted if the subject is not giving consent.

### *3.3.4 Safeguards Taken to Ensure Physical and Mental Fitness*

Before any of the tests are conducted, laboratories ensure the physical and mental fitness of the subject. All the safeguards are taken as per the procedure Manuals. For Narco Analysis all medical facilities are provided as per the medical requirements.[30]

### *3.3.5 Additional Safeguards Taken Apart from 'Selvi' Safeguards*

State FSL Mumbai stated that, if subject is under physical or mental treatment for any illness, additional safeguards like taking medical certificates of fitness are taken during psychological profiling. If the subject is found to be suffering from illness and if he is not taking any treatment for physical or mental illness, he is referred for treatment. If subject is found physically or mentally unfit, no tests are conducted. In Narco Analysis, all the medical tests are required to be conducted to ensure his physical and mental fitness. All other laboratories have stated that they take safeguards as per *Selvi* requirements and National Human Rights Commission Guidelines.

30. Anaesthetic practice must satisfy International Standards for a Safe Practice of Anaesthesia, 2010 and also World Health Organization (WHO) 2009, Safe Surgery Check List. The check List provides safety mechanism to be followed before starting anaesthesia, during and after the procedure. International Standards provides for general standards like professional status, workload, training, facilities, equipment and medications. It is also provided that appropriate equipment and facilities, adequate both in quantity and quality, should be present wherever anaesthesia and recovery from it is undertaken, including outside traditional hospital operating room suites, such as procedure or imaging suites and outpatient facilities or offices. The standards also provide for Peri-anesthetic care and monitoring standards. These standards are followed as "Indian Monitoring Standards" by Indian Society of Anaesthesiologists and are applicable for Anaesthetic service in any part of the Indian Union in any sector. For details of Indian Standards see http://www. isaweb.in/WebPages/MonitoringStandards.aspx (accessed on 03/10/2017).For details of International standards, see, Alan F. Merry, *et. al.*, "International Standards for a Safe Practice of Anaesthesia 2010," Vol. 57(11), Canadian Journal of Anaesthesia, September 2010, pp.1027-1034.

### *3.3.6 Persons Present While the Tests are Conducted*

For Polygraph, all the laboratories have stated that the examiner and examinee will be present. For Narco Analysis, an anesthetist, physician, psychologists and videographer will be present. However Haryana, Thiruvanathapuram and Bangalore FSL's have stated that for Polygraph, apart from examiner and examinee, lawyer also will be present.

### *3.3.7 Whether Video Recorded?*[31]

In the case of Polygraph, the test procedure is video graphed only by 2 laboratories viz., Thiruvananthapuram and Lucknow FSL's and Odisha FSL records in web cam. However Narco Analysis Test is video graphed by all laboratories.

Thus as per the information obtained, only procedural defect noticed is absence of lawyer during the administration of the tests. All other procedural safeguards are strictly followed. Therefore it is suggested that court may appoint a lawyer to ensure that procedural safeguards are properly followed. A certificate by Director FSL to ensure the authenticity of videotapes must be insisted.

### *3.3.8 Qualification and Competency of Examiners*[32]

#### *3.3.8.1 Qualification*

The tests are conducted by forensic psychologists whose minimum qualification is post-graduation in psychology. Some of the forensic psychologists have MPhil and some have even PhD in psychology. Only in State FSL, Nagaland, Polygraph Test is conducted by a police officer trained in the technique. He has graduation in psychology and post-graduation in education and has undergone certificate course in Polygraph from Central Forensic Science Laboratory CBI, New Delhi.

#### *3.3.8.2 Experience, Training and Number of Forensic Psychologists*

The experience of the forensic psychologists ranges from 1 year to 25 years. They are being trained from CFSL CBI (New Delhi).

31 Information provided by the laboratories is given in Appendix IV.
32 The details of the Information provided are given in Appendix V.

Most of the laboratories have two psychologists in the division. However, it is deplorable to note that in State FSL Mumbai, where all the three tests are conducted, only one permanent staff is in position. More forensic psychologists may be appointed in Mumbai laboratory. The examiners who conduct Forensic Psychological Tests are qualified and competent.

#### *3.3.8.3 Regulation of Forensic Psychology Practice in India*

Licensing and Certification of forensic psychologists in India seems to be a debatable issue. It is pertinent to note that even psychology practice in India lacks regulation.[33] It is the Rehabilitation Council of India, which is entrusted with the function of providing license. [34] Minimum qualification for registration with Rehabilitation of Council of India is M Phil in Clinical Psychology. Rehabilitation Council of India has no authority to register anyone who is not a clinical psychologist or rehabilitation psychologist. [35] This would mean that a forensic psychologist need not register with RCI. So there are no licensing or accepted standards for practice in forensic psychology field.[36] It seems that Directorate of Forensic Science Service is the nodal agency for conducting proficiency testing for forensic science service in the country and evolving ethical standards of practice of the professionals. [37] However such initiatives seem inadequate with respect to regulation of forensic psychology practice in the country.[38] Thus, it may be stated

33. Dr. Gaurav Agrawal, "Psychology in India: A Career with Uncertain Opportunities," Vol. 1(2), Online journal of Multidisciplinary Research, 2015, pp.1-7 available at http://www.ojmr.in/psychology-in-india-a-career-with-uncertain-opportunities.html (accessed on 10/09/2017).
34. *ibid*. Rehabilitation Council of India (RCI) was set up as a registered society in 1986 and in 1992, RCI Act was enacted by the parliament and it became a statutory body in 1993. The Act was amended in 2000 to make it more broad based. RCI is mandated to regulate and monitor services given to persons with disability, to standardize the syllabus. RCI is also bound to maintain a Central Rehabilitation Register of all qualified professionals registered with them.
35 . *supra* n. 33.The author states that in response to an RTI application, RCI has stated that it has no authority to register anyone who is not a clinical psychologist or works in the field of rehabilitation.
36. Ethical guidelines had been laid down by Indian Association of Clinical Psychologists and National Academy of Psychology, India. Those guidelines must be made applicable with respect to forensic psychologists also. See, Indian Association of Clinical Psychologists, Guideline 10 of Ethics and Code of Conduct of Clinical Psychologists Guidelines, 2012-2013, See also, National Academy of Psychology, India, Ethical Principles for Psychologists, 2010.
37. *supra*. n.14.
38. Presently Government is taking steps to bring in a new legislation by introducing a Bill, National Forensic Science Standards Bill, 2014. The proposed Bill, will provide for establishing an office of the 'Bureau of Forensic Science' and a 'National Board for Forensic

that there is lack of systematic and proper regulation of forensic psychology practice in India.[39]

### *3.3.9 Duration in Conducting the Tests and Giving Reports[40]*

Generally delay and pendency of cases in FSL's are raised as major drawback of forensic science service in India. As far as Forensic Psychological Tests are concerned, it is found that there is not much delay in conducting the tests and filing of reports. Usually the tests are conducted based on priority determined on the basis of date of request. The whole procedure is completed within 2 weeks to one and half months depending on number of subjects to be examined.

It is heartening to note that Odisha laboratory conducts the tests within 10 days and generates the report, within 2-3 days of conducting the tests. Nagaland laboratory also conducts the test within 5 days and the whole process is completed within 20days. Mumbai laboratory also conducts the tests within 15 days in the case of Polygraph and BEOS Test and within 1 month in the case of Narco Analysis. Therefore, delay and pendency of cases is not an issue as far as Forensic Psychological Tests are concerned. However it may become an issue if number of cases comes up in future.

### *3.3.10 Number of Subjects and Cases in Which the Tests are Conducted Between 2007 and 2015*

Information has been sought from all the FSL's to analyse whether cases are coming up for Polygraph, BEOS and Narco Analysis Test after *Selvi* decision and also to analyse the scope of the tests in criminal investigation. State FSL's of Mumbai, Delhi, Haryana, Nagaland, Odisha, Karnataka[41], Kerala and CFSL CBI

Science Standards' under the Ministry of Home Affairs. The existing Directorate of Forensic Science Services will be merged with the bureau. See, Ragahav Ohri, "Government Taking Steps to Create a New Bill to Boost Forensic Science Research," The Economic Times, June 25, 2015, available at http://economictimes .indiatimes. com/news /politics-and-nation/government-taking-steps-to-create-a-new-bill-to-boost-forensic-science-research/articleshow/47808882.cms (accessed on 10/09/2017).

39. It seems the situation with respect to all disciplines of Forensic Science is more or less the same. See, Dr. Gopal Ji Misra *supra* n. 12 at p. 458.
40. Information provided by the laboratory is given in Appendix VI.
41. As per the information provided, Bangalore Laboratory has discontinued the division from 2010.

gave information in this regard.[42] The analysis of data of all the laboratories show that though there was a dip in the number of cases referred for the tests after *Selvi* decision in 2011/2012, presently more cases are referred for these tests. It is found that there is an increase of 13% , 11%,, 14%, 15% of cases, when the number of cases referred for 2014 and 2015 were compared, in the Laboratories of CFSL CBI, SFSL Thiruvananthapuram, SFSL Odisha, FSL NCT Delhi respectively.

## 3.4 Status of Forensic Psychological Tests: International Position

Since the middle of 1990's in most of the countries, Forensic Psychological Tests especially Polygraph is used in various settings like civil, criminal and employment settings. Some of the countries like USA, England etc. have their laws touching these tests. However in some nations, it is the judicial decisions which govern these tests. USA ranks first among the nations regarding the use of these tests, followed by countries in Asia.[43] For the purpose of this study, the State -of – the- art of these tests of those countries where these tests are prominent in criminal investigation and trial are analysed.[44] The countries include both common law[45] and civil law[46] countries.

42. This information is tabulated and the graphical representation is also provided in Appendix VII.
43 Vol.1(1), European polygraph, p5, 2007,available at https:/ /repozytorium.ka .edu.pl/bitstream/ handle/11315/799/European_Polygraph_nr1_2007.pdf?sequence=1- (accessed on 06/03/2017).
44. For instance, in countries like Israel, Hungary, Malaysia, Singapore and China the tests especially Polygraph, are very much prominent in criminal investigation. In Israel, results of Polygraph Tests are only used as investigative aid, but not used as direct evidence in trial. For investigative purpose, there exists a special laboratory in Israel for the development and improvement of methodological and technical means of these tests. Most of the Israeli experts are members of American Polygraph Association. Israeli ministry of defence extensively uses LVA Test. LVA Test was actually developed in Israel. So Israel gives importance to improve the reliability of the tests. China gives much emphasis to the research in these tests under the aegis of Ministry of Public safety. In China, since 2005, Forensic examination administrative system was separated from police, prosecutor and court. Presently it is under Ministry of justice, which has issued new requirements for registration and administration of forensic scientists and general administration of forensic examination institutes. The 2005 decision of the Standing Committee of the National People's congress on Administration of judicial examination has provided for Forensic Examination Management System and accreditation and evaluation of capabilities of forensic science organizations and proficiency testing of forensic science which expanded to 9 professional fields including Forensic psychology. Thus china takes initiatives in improving the reliability of the tests and also the competency of the experts. In Singapore, Polygraph test expanded rapidly since 1989. Govt sector is the main consumer of Polygraph Test. To provide training for Polygraph examiners and to set professional standards for Polygraph examiners, Singapore Association of Polygraph Examiners was constituted in 2004.Admissibility of Polygraph Test is not considered so far by Courts and it is used as investigative tool. The test is conducted only if the subject consents for the test and he has the right to refuse the test. Recently Singapore has stared research on possible uses of neuro scientific evidence. In Malaysia as well

as in Hungary, Forensic psychology is branch of Forensic Science and the tests are prominently used as investigative aid. The legal system all these countries except Singapore are not comparable to that of India. Only Singapore legal system is analogous to that of India. Israel and Malaysia follows mixed legal system and Hungary is mainly a civil law country. However, the legal system in these countries takes a benevolent approach towards rights of the accused. In Israel, though International human rights norms do not automatically become part of domestic law, the judiciary in that country interprets legislation in tune with it to avoid conflict. Malaysian Constitution also has many provisions protecting the rights of the accused. In Hungary, new Constitution came into force in January 2012and the Criminal Procedure Code in Hungary is also amended in tune with ECHR, after that country joined ECHR in 2004. The Chinese legal system is in no way comparable to that of India. China follows continental European Civil Law system and legislature retains the power to interpret the statutes. There is no presumption of innocence or right to silence in China. The right to counsel is extremely limited in pretrial phase and during trial this right is circumscribed by the absence of pretrial discovery. However, the Chinese Criminal Procedure Law, 1979 was revised in early 2012 to make it more human rights friendly. It may be stated that, the legal system in China is not comparable to any of the common law countries and the country's position is analysed only to study the initiatives taken in that country to improve the scientific validity of the tests and the competency of experts which have impact on right to fair trial of the accused. Thus all countries (except China, some changes is made since 2012) give prominence to rights of the accused. These countries also take initiatives in improving the scientific validity of the tests and also the competency of the experts and ensure safeguards like consent of the accused etc., while the tests are conducted. For Israeli position see, *supra* n.1 at p.162, See also, Gloria M. Weisman, "World Fact Book of Criminal Justice Systems," available at https://www.bjs.gov/content/pub/pdf/wfbcjsis.pdf (accessed on 27/05/2017). For position in Hungary see, http://www.bszki.hu/english/index.php (accessed on 07-03-2017), See also, Human Rights Council, *Report of the Working Group on Arbitrary Detention on its visit to Hungary (Sept-Oct 2013)*,UN General Assembly, July 2014, pp.6-9 available atwww.ohchr.org/EN/ HRBodies/HRC/. ../Session27/.. ./A_HRC_27_ 48_Add_ 4_ENG.do (accessed on 01/11/2017).For position in Malaysia see, http://forensics.org.my/about.php, see also, Abdul Razak Bin Haji Mohamad Hassan, *The Administration of Criminal Justice in Malaysia: The Role and Function of Prosecution*, Resource Materials Series No. 53, 107th International Training Course participants papers, UN Asia and Far East Institute for the Prevention of Crime and Treatment of Offenders, Japan,(1998), available at http://www.unafei.or.jp/ nglish/pdf/RS_ No53/No53_25PA_ Hassan.pdf (accessed on 01/11/2017).For Position in Singapore, see Koa Fung Chew, "The Development of Polygraph Examinations in Singapore," Vol.1 (1), European Polygraph, Summer 2007, pp.35-42 at p.38. See also, Dominique J. Church, "Neuroscience in the Courtroom: An International Concern," Vol.53, William and Mary Law Review, 2012, pp.1825-1854, at p.1828. For position in China, Zhang B & Li Y, "The Role of Forensic Examination at Trials in China," Vol.1, Journal of Forensic Science and Medicine, 2015, pp.149-158. See also, Ira Belkin, "China's Criminal Justice System: A Work in Progress," Washington Journal of Modern China, May 2012, pp1-27.

45. When position in common law countries like USA, Canada etc. are analysed, it could be found that the admissibility criteria as applicable in the case of scientific evidence like *Daubert* test, *Mohans*' criteria etc. is applicable to Forensic Psychological Evidence. Legal system in these countries are in a comparable position with that of India. Human rights of the accused in these countries are ensured by their respective Constitutions, Criminal Procedural Laws and Evidence Acts. These aspects are analysed in subsequent chapters.
46. The countries like Japan, Belgium, and Poland etc., follow Civil Law System. The criminal justice systems in these countries are also based on Human Rights Principles. In these countries the Test results are admitted as evidence in trial.

### *3.4.1 United States of America*

When US position is analysed, it can be seen that since the decision in *Jenkins* v. *US*,[47] courts began to admit psychological expert evidence in criminal trial. In 2001, forensic psychology was recognized as a specialty by American Psychological Association.

#### 3.4.1.1 *Polygraph*

In USA, Polygraph Test is mainly conducted by the Department of Justice for various administrative, employment and investigative purposes.[48] Nearly 11 states have enacted laws for conducting Polygraph Tests in certain cases.[49] Presently, admissibility of scientific evidence is governed by *Daubert* criteria and amended Federal Rules of Evidence, which is applicable in the case of Polygraph evidence also.[50] It is pertinent to note that after *Daubert* decision, there has been increased willingness to accept evidence of Polygraph Test results by courts.[51]

The research and regulation of Polygraph Test and training of experts are much advanced in USA.[52] American Polygraph Association and American Academy of Polygraph Examiners have made much contribution in the field of Polygraph research. The Department of Defence Polygraph Institute conducts training of all Government Polygraph examiners and has also introduced admission requirements for its Polygraph examiners. This has resulted in standardization and quality control

47. *Jenkins* v. *US*, 307 F.2d 637 (1962).
48. U.S. Dept. of Justice, Office of the Inspector General, Evaluation and Inspections Division, *OIG Special Report on Use of Polygraph Examinations in the Department of Justice I-2006-008*, Washington D.C., September 2006,pp,i-iv, available at https://oig.justice.gov/reports/ plus/e0608/final.pdf (accessed on 05/12/2015).
49. Satyendra. K. Kaul and Mbohd.H. Zaidi, *Narco Analysis, Brain Mapping, Hypnosis and Lie Detector Tests in Interrogation of Suspect*, Alia Law Agency, Allahabad, (2009), p.608.
50. *Daubert* Criteria and Federal Rules of Evidence, 1975, are discussed in subsequent chapters.
51. Annari Faurie. "The Admissibility and Evaluation of Scientific Evidence in Court," ( Dissertation, Master of Laws, The University of South Africa, 2001) p.75, available at http://uir.unisa.ac.za/bitstream/handle/10500/16774/dissertation_faurie_a.pdf;sequence=1 (accessed on 25/07/2017).
52. Polygraph training is mainly provided by Polygraph schools which are accredited by American Polygraph Association. The National Centre for Credibility Assessment also provides for one semester course and they provide training to law enforcement officers. See, for discussion, William G Iacono and Christopher J Patrick, "Employing Polygraph Assessment", in Irving B. Weiner Randy K. Otto , *The Handbook of Forensic Psychology*, John Wiley & Sons, Inc., Hoboken, New Jersey (4th edn., 2013), pp.613-658, available at https://archive. org/stream/ 1118348419 Psychol/ 1118348419_Psychol_djvu.txt (accessed on 19/12/2017).

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in Polygraph examinations. Major regulatory approach adopted, is setting up licensing standards, as the results of the test is mainly based on subjective interpretation of experts.[53] However, there is no legislation governing Polygraph in criminal justice setting.[54]

Major criticism against Polygraph Test in this country, is with respect to its use in employment settings than its use in law enforcement settings. The perusal of various Commission[55] and Committee reports would lead to this conclusion. It seems that recent Government policy is a positive attitude towards Polygraph Tests. Since 2013, US federal Government has started to prosecute persons who are involved in teaching counter measures to beat Polygraph.[56] Similarly, though courts of state jurisdictions show different trends[57] as to the admissibility of Polygraph evidence, there is no *per se* ban of the test in USA. The test is extensively used as an investigative tool and also in post-conviction proceedings. Hence the test is of utility in criminal justice system in USA.

53. Regarding regulation on the use of Polygraph examination, various attempts to bring in regulation on the use of Polygraph had been made in local, state and federal level since 1952. See, William. S. Moorhead, *The Use of Polygraph and Similar Devices by Federal Agencies*, Hearings Before a Subcommittee of the Committee on Government Operations House of Representatives, Ninety Third Congress, Second Session, June 1974, available at http://archive.org/stream/useofPolygraphss00unit/useofPolygraphss00unit_djvu.txt (accessed on 01/03/2015).
54. But in employment settings, Employees Polygraph Protection Act, 1988 regulates Polygraph use. The Act does not prohibit Government or state authorities from using Polygraph test. It is pertinent to note that National Defence Authorization Act, 2000, requires the scientists at the nuclear weapons laboratory to submit to Polygraph Test to maintain security clearance.
55. Various commissions had been appointed to study about the validity of Polygraph Test. For instance US Congress Office of Technology Assessment in 1983 had studied about Polygraph and had stated that though evidence seems to indicate Polygraph Test detects deceptive subjects better than chance, significant error rates are also possible apart from examiner -examinee differences and use of counter measures. National Research Committee Report in 2003 stated that regarding specific incident investigation Polygraph accuracy is high.
56 Marisa Taylor and Cleve R. Wootson Jr., "Seeing Threats, Feds Target Instructors of Polygraph-Beating Methods," McClatchy Washington DC Bureau, August 16, 2013, available at http://www.mcclatchydc.com/news/special-reports/insider-, 2013 threats/article 24752116. html#. UiIeOn9fuSp (accessed on 29/08/2017). In 2010, US, National Security Agency, have also produced a video explaining Polygraph process and the video is supporting the use of Polygraph. Anti Polygraph Organisation has brought a counter video against this. Gautam Nagesh, "NSA Video Tries to Dispel Fear About Polygraph Use During Job Interviews," The Hill, June 14, 2010, available at http://thehill.com/policy /technology/102963-nsa-video-comes-clean-on-Polygraph-use (accessed on 28/09/2017).
57 Courts in state jurisdictions exhibit mainly three trends as to Polygraph admissibility viz., per se inadmissibility, admissibility on stipulation and discretion of trial judge. This aspect is discussed in detail in chapter VI.

Thus, it is found that in USA, Polygraph Test is extensively used in criminal justice settings. It is also found that attempts are also made to bring regulation through legislation and licensing so as to bring more objectiveness and standardization in this regard. The administration, expertise and training of the experts are also given predominance. Thus it may be stated that, attempts are made in various state jurisdictions to improve the quality of the Polygraph Test results, which will have positive impact on the reliability of the test results.

#### *3.4.1.2 Narco Analysis*

After terrorist attack in World Trade Centre, Narco Analysis is conducted on suspects of terrorism in USA.[58] But it is not used by law enforcement agencies and is not a popular investigative tool.

#### *3.4.1.3 Neuro Imaging Tests*

Presently, Brain Fingerprinting is used by Federal Bureau of Investigation.[59] The technique was developed by Lawrence Farwell. As far as Brain Fingerprinting and FMRI[60] evidence is concerned, though presently courts are reluctant to admit evidence,[61] judiciary itself has expressed its intention to admit it when the tests attain scientific validity in future. Moreover US Government is also making huge funding in Neuro Based Lie Detection Projects.[62]

58 J. Lee Adamich, "The Selected Cases of Myron the Bright: 30 Years of His Jurisprudence," 83 Minn.L. Rev. 239 as cited in Arvindeka Chaudhary, "Admissibility of Scientific Evidence Under Indian Evidence Act 1872," (PhD Thesis, Department of Laws, Gurunanak Dev University, 2014), p.86, available at http://shodhganga.inflibnet.ac.in/handle/10603/102549 (accessed on 12/09/2017).

59. *supra* n.49 at p. 519.

60. Herein after referred to as FMRI. At least two companies in US are providing FMRI lie detection tests to be used in legal cases. They are Cephos Ltd and No Lie MRI. See http://noliemri.com/index.htm and http://www.cephoscorp.com/, for details on both. It is stated that US Supreme Court became interested in FMRI evidence after the decision of the court in *Roper* v. *Simmons*, 543 U.S. 551 (2005), in which execution of minors were held as unconstitutional. See, Reyhan Harmanci, "Complex Brain Imaging is Making Waves in Court," S.F. Chronicle, October 17, 2008, available at www.sfgate.com/.../Complex-brain-imaging-is-making-waves-in-court-3 (accessed on 30/11/2015).

61. The reason mostly stated is non satisfaction of *Daubert* criteria. This aspect is analysed in detail in next chapters.

62. Jonathan H. Marks, "Interrogational Neuro Imaging in Counter Terrorism: A "No-Brainer" or a Human Rights Hazard?," Vol.33( 2&3), American Journal of Law and Medicine, August 2007, pp.483-500 at p.490.

#### *3.4.1.4 LVA and Psychological Stress Evaluator*

LVA Test is used by US Ministry of Defence.[63] As early as in 1982, New Mexican Court of Appeals has held that PSE evidence is admissible in trial.[64] The court held that trial court may admit the PSE evidence in its discretion, if the proponent of the test satisfies the conditions of qualifications of the examiner, the reliability and the validity of the test. It is also important to note that recently a federal court has approved the use of CVSA test to monitor sex offenders.[65]

It may thus be stated that Forensic Psychological Tests is prevalent in US jurisdictions and is used in criminal investigation. Positive attitude is also shown by courts of various jurisdictions to admit Forensic Psychological Tests results. Different jurisdictions are also taking initiatives in bringing regulation in this regard.

### *3.4.2 United Kingdom*

As far as Forensic Psychological Tests in UK is concerned, British Psychological Society in two of its reports in 1986 and 2004 had expressed its doubts regarding the accuracy of Polygraph testing's.[66] However, it may be stated that Polygraph Testing became legalized in probation settings with the passage of Offender Management Act, 2007.[67] This Act allows the use of Polygraph tests in

63. TACK Africa, "Layered Voice Analysis (LVA) Technology," available at http:// www.tackafrica. com/downloads/LVA.pdf (accessed on 30/08/2017).
64. *Simon Neustadt Family Center, Inc.* v. *Bludworth,* 641 P.2d 531 (Ct. App. 1982).
65. **"**Federal Judge Approves Non-Polygraph Technology to Monitor Sex Offenders: US District Court Decision Validates CVSA Technology for Federal Agency Use," PR Newswire, March 11, 2014, available at http://www.prnewswire.com/news-releases/federal-judge-approves-non-Polygraph-technology-to-monitor-sex-offenders-249424721.html (accessed on 30/08/2017).
66. The British Psychology Society Working Party, *Final Report on A Review of the Current Scientific Status and Fields of Application of Polygraphic Deception Detection*, The British Psychology Society, October 6, 2004, p.10, available at http://www.bps.org.uk/sites/ default/files/documents/ Polygraphic_deception_detection_- _a_review_ of_the_current_ scientific_ status_ and_fields_of_application.pdf (accessed on 28/08/2017). Philips Commission, 1981(at para 4.76) had also criticized these tests for lack of certainty from evidential point of view for the use in courts. For details see, Johnston, "Brain Scanning and Lie Detectors: The Implications for Fundamental Defence Rights," Vol.22 (2), European Journal of Current Legal Issues, 2016, available at http://eprints.uwe.ac.uk/28569 (accessed on 09/10/2017).
67. The Offender Management Act 2007, Part 3.The Polygraph Rules, 2009 governs the conduct of Polygraph testing of certain sex offenders who have been released from prison on license.
A study on sex offenders between the period of April 2009 and October 2011 in the East and West Midlands probation regions had concluded that the test is of utility for the rehabilitation of sexual offenders. See Gannon.T *et al.*, "An evaluation of Mandatory Polygraph Testing for Sexual Offenders in the United Kingdom Sexual Abuse," Vol. 26(2), Sexual Abuse: A Journal

sexual offenders in probation field, even without consent, if it is written as a parole condition. But, it forbids the use of any statement, or any physiological test results obtained during the test. The test for this purpose is regulated by Polygraph Rules, 2009.[68] As per these rules, the Secretary of State can require certain offenders released on license to undergo Polygraph Test to monitor the compliance with the term of license and also to improve offender management.[69]

In England there is no criminal case has been reported which has decided the admissibility of evidence based on Forensic Psychological Tests. But in a civil case, *Fennell v. Jerome Property Maintenance Ltd* [70] the Narco Analysis evidence was held inadmissible. There is also increased interest in using brain imaging for surveillance and security purposes.[71] Voice analysis is used in banking and insurance sectors for detecting fraud, than in criminal justice settings.[72]

### *3.4.3 Australia*

As far as Forensic psychological Tests are concerned, in Australia, there exists Lie Detector Act, 1983, the object of which is to prevent the misuse of tests like Polygraph by employers, insurance companies etc. Section 6(1) of the Act, provides that output from Lie Detector Test and any opinion based on that output is inadmissible in evidence. It is also an offence, if any person uses evidence based on lie detection to determine whether a person is guilty of any crime.[73] When Australian position is considered, it could be seen that in two decisions, court has rejected

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of Research and Treatment, 2014, pp.178-203. See also, Terry Thomas, "Polygraph Arrive in the UK," Crimcast, April 2015, available at http://www.crimcast.tv/crimcast /2015/4/14/ Polygraphs-arrive-in-the-uk (accessed on 01/06/2015).

68. http://www.legislation.gov.uk/uksi/2009/619/contents/made.
69. *ibid.*
70. *Fennell* v. *Jerome Property Maintenance Ltd, The Times*, (26 November 1986), Queen's Bench Division.
71. *Report on Scientific Basis of Deception Detection Technology, Detecting Deception*, Parliamentary Office of Science and Technology, House of parliament, May 2011, p.2, available at http://www.parliament.uk/documents/post/postpn375Detecting_deception.pdf (accessed on 30/08/2017).
72. *ibid.*
73. Ugur Nedim, "Should Lie Detectors be Used in Australia," Sydney Criminal Lawyers, December 18, 2015, available at http://www.sydneycriminallawyers.com.au/blog/should-lie-detectors-be-used-in-australia/ (accessed on 06/06/2017).See, The Lie Detector Act 1983, s.4. This section defines prohibited purpose to include establishing whether or not a person is guilty of an act or omission that is punishable by fine or imprisonment.

Polygraph evidence.[74] The Federal Polygraph Association of Australia gives training and stipulates standards for certification of Polygraph examiners in Australia and regulates the use of Polygraph Test in the country.[75] Other tests are of not much prevalent in the country.[76]

### *3.4.4 Canada*

Canada Ranks second after US, as to the volume of research studies conducted with respect to Polygraph.[77] Since 1950's, Canada has been using Polygraph test in law enforcement. Till 1978, Polygraph experts were trained in USA. Later Institute of Polygraph of the Department of Defence began to give training to Polygraph experts. Canadian police mainly used Polygraph to narrow down the circle of suspects, to determine whether crime has been committed, to identify guilty, to decide whether there is concealment of information and also to collect additional information.[78] The tests are also conducted on accused, victims and witnesses. The tests could be conducted only with consent.[79] In *R* v. *Beland*,[80] the Supreme Court of Canada had rejected the use of Polygraph results as evidence in courts on the grounds of exclusionary rules of evidence. However even after this decision, Polygraph Test is widely used in criminal investigation.

### 3.4.5 *Japan*

In Japan, it can be seen that National Institute of Police Sciences in Tokyo conduct more researches in Forensic Psychological Tests especially Polygraph than

74. Raymond George Murray, 1982 7 A Crim R 48. The District Court of New South Wales rejected Polygraph evidence. This decision was made one year prior to the passing of Lie Detector Act, 1983. See also Ben Clarke, "Trial by Ordeal, Polygraph Testing in Australia," Vol.7(1), Murdoch University Electronic Journal of Law, March 2000, available at http://www.murdoch.edu.au/elaw/issues/v7n1/clarke71_text.html (accessed on 05/10/2017); *Mallard* v *The Queen,* [2003] WASCA 296 3 December 2003. The Supreme Court of Western Australia, Court of Criminal Appeal, rejected polygraph evidence. The High Court of Australia has not yet considered Polygraph admissibility.
75. Find Law Australia, "Can Evidence Gained From a Lie Detector Test be Admissible as Evidence Under Australian Law?," 2017, available at http://www.findlaw.com.au/articles/4452/can-evidence-gained-from-a-lie-detector-test-be-ad.aspx (accessed on 31/08/2017).
76. Graham Pidco, "Lie Detectors: Infallible Technology or Junk Science?," available at www.psych.toronto.edu/users/furedy/Papers/ld/detectors.doc (accessed on 31/08/2017).
77. *supra* n. 1 at p.163.
78. *ibid.*
79. *ibid.*
80. *R. v. Béland,* [1987] 2 S.C.R. 398.

any other countries in the world.[81] Regarding the use of these tests also, Japan is a leading country. In Japan since 1959, Polygraph Test results are admitted as evidence.[82] The Supreme Court of Japan has left it to the discretion of trial judge to decide as to the admissibility of these tests. Thus, in Japan, these tests are used as investigative aid and also used as evidence in court of law. Tsukuba University, has conducted a study on reliability and validity of LVA Test in the detection of mental stress and the study found that LVA is useful in the detection of mental stress.[83] Thus it may be stated that the country take more initiative in research in this branch so as to ensure reliability and validity of the tests.

Though the legal system in Japan is not comparable with that of India,[84] the analysis of constitutional and legal system in that country shows that both the Code and the Constitution guarantees several fundamental rights to the accused.[85] The state is bound by the international covenants to protect the human rights.[86] The adversary principle is also applied and parties concerned have the initiative for the collection and provision of evidence, though court may also examine evidence. This clearly depicts that regarding predominance given to the human rights of the accused, the

81. Akemi Osuga, "Daily Application of the Concealed Information test: Japan," in *Memory Detection: Theory and Application of the Concealed Information Test*, Cambridge University Press, Cambridge, at p.253 as cited in Jeremy Tiger, "Guilty Minds: The Science, Law, and Admissibility of the Concealed Information Test in the Canadian Context," July 27, 2017, pp.1-16 at pp.11, 16, available at http://www. ottawamens centre.com/news/ 20160727_ Guilty_ Minds_by_Jeremy_Tiger.pdf (accessed on 31/08/2017).

82 *ibid*, See also Shinji Hira and Isato Furumistu, "Polygraphic Examinations in Japan: Application of the Guilty Knowledge Test in Forensic Investigations," Vol. 4(1), International Journal of Police Science and Management, March 2002, pp.16-27 at p.17.

83 **"**Does the Layered Voice Analysis Enable us to Evaluate Depression and Anxiety Symptom?," available at http://www.nemesysco.com/partners /FILES/Tsukuba%20 Univ.%20 Presentation %20at%20the%20Japanese%20Society%20of%20Mood%20D.pdf (accessed on 31/08/2017).

84 Because Japan follows civil law system which is based on German model and also reflects Anglo American influence and Japanese traditions.

85. Supreme Court of Japan," History of Criminal Justice in Japan," 2016, pp. 7, 12-19, 25-34, available at http://www.courts.go.j p/english/vcms_ lf/Outline_of_ Criminal_ Justice_in _Japan_2016.pdf (accessed on 31/08/2017). The defendant is presumed to be innocent and burden of proof is on the prosecution to prove the case beyond reasonable doubt. The Japanese Constitution provides that apprehension, search, seizure etc. can be done only as per judicial warrant. Suspect also has right to counsel, and right to remain silent, right against torture, right against ex post facto laws, double jeopardy, right to legal counsel, etc.

86 *ibid.* Constitution of Japan 1947, Art.98 Para 2**.** The policy of Government is that these international standards must be read into the Constitution and would immediately become domestic law of the land.

position in Japan is analogous to that of India. Hence, India could take guidance from the initiatives taken in Japan for ensuring reliability of Forensic Psychological Tests.

### *3.4.6 South Africa*

In South Africa,[87] Polygraph component is part of scientific analysis unit of Forensic Science Laboratory of South Africa. The members of the unit have undergone intensive international training.[88] When Forensic Psychological Tests are considered, it seems that it was from late 1970's Polygraph Test became prominent in Africa and presently the use of the Test in criminal investigation settings is escalating.[89] South African Polygraph Association regulates the working of the test and the qualification and training of experts.[90] However there is no specific legislation or code of good practice that govern Polygraph Test in South Africa.

Most significant case with regard to Forensic Psychological Tests is *Mahlangu* v. *CIL Deltak*,[91] wherein the court held that the voice test which was administered by an unregistered psychiatrist is invalid, unscientific, unlawful and unethical. It seems that incompetency of expert has constrained the court to come to that conclusion.

87 . South Arica, though not a developed country, is one of the wealthiest in Africa and is the one with a stable functioning of democracy. For discussion on legal status of Forensic Science Service in the country, see, Andrew Faull, "Forensic Science and the Future of Policing in South Africa," Institute for Security Studies, February 21, 2011, available at https://issafrica.org/iss-today/forensic-science-and-the-future-of-policing-in-south-africa (accessed on 06/-03/2017).

88 . *ibid.*

89 . Raymond Charles Martin, "The Application of the Polygraph in the Criminal Justice System," (Dissertation, Master of Arts in Criminology, University of South Africa, 2001), p.174, available at http://uir.unisa.ac.za/bitstream/ handle/10500/18136/disse rtation_martin_rc.pdf ?sequen ce=1 (accessed on 03/10/2017).The author states that the increased use of Polygraph is due to escalating crime rate, delay in investigation and judicial process, establishment of Polygraph unit by South African Police Service and realisation of increased benefit of Polygraph in investigation.

90. However the Polygraph Association of South Africa have less strict admission requirements. As a general guideline, the association strongly recommends that the following criteria should apply as a minimum:(i) be over the age of twenty five;(ii) qualifications: A Bachelor degree;(iii) strong moral character;(iv) a stable personal life; and(v) investigative experience. Daniel Francisco Calaca , "The Use of Polygraph Tests and Related Evidentiary Aspects in Labour Disputes," ( Research Dissertation, LL.M degree, Department of Mercantile Law, University of Pretoria, May 2010), p.16, available at http://repository.up. ac.za/xmlui/ bitstream/ handle/ 2263/28333/ dissertation .pdf?sequence=1&isAllowed=y (accessed on 31/08/2017).

91. 1986 (7) ILJ 346 (IC). See also, *Sosibo & others* v. *ceramic Tile Market*, heard by an Industrial court. 2009 (30) ILJ 677 (LC).

Though no direct case law is reported as to Polygraph use in Criminal investigation settings in South Africa, based on case laws[92] on labour matters dealing with these tests[93] the divergent approaches[94] taken by courts may be summarised as follows:

i. In some cases courts do not consider Polygraph Test results as reliable and admissible. No adverse inference is also taken about the person who refuses to take the test.
ii. In some other cases, courts have held that, Polygraph Test result is not admissible in evidence, if no evidence is given as to the qualification of expert and if he is not called to give evidence in courts.
iii. Courts also take the view that, though the test result may be admissible as expert evidence, Polygraph Test result on its own cannot be considered to determine the guilt.
iv. Lastly another view is that, where there are other admissible expert evidence, Polygraph test result may be taken into consideration to determine the guilt.

It thus seems that, if the test is applied by a competent expert and if other independent corroborative evidence is there, Polygraph Test result is admitted in evidence. Thus it may be stated that the trend in South Africa is to admit the tests as corroborative evidence. South African police service uses LVA test also.[95]

It may be true that South Africa follows mixed legal system of Roman and Dutch Civil Law, English common law and also customary law. The analysis of the constitutional provisions reveals that, South African Constitution guarantees several rights to the accused.[96] South African criminal trial operates on the basis of an adversarial system.[97]Hence it may be stated that legal system in South Africa has

92. The divergent views are summarised in *Sosibo & others supra*.
93. Mainly Polygraph Test.
94. *supra* n. 90 at pp.13-14.
95. *supra* n.63.
96. Constitution of Republic of South Africa 1996, s. 12 deals with right to freedom and security of person, right to privacy,(s.14), right to remain silent, right to have legal representation, right to communicate to spouse, doctor etc, speedy trial, right to present evidence etc. and right to judicial remedy in case of violation of any of these rights. See Ss. 35 and 38.
97. There is also no jury system in South Africa as in India. Independent Project Trust, *The Criminal Justice System and You: A Guide to the South African Criminal Justice System for Refugees and*

benevolent approach towards the accused, and hence India may take lessons from this country as to ensure the reliability of the tests by giving proper in-service training to the experts and also by proper regulation of the working of the tests.

### 3.4.7. *Belgium*

In Belgium,[98] Polygraph Tests were used for the first time in 1997 in the case of serial murder of children.[99] In that case, the test was very helpful and this case paved way for further use of Polygraph Tests in criminal investigation. Polygraph Test is regulated by legislation. Here, the Polygraph Test is used as investigative aid like DNA.[100] But the results of the test are not used as direct evidence. In February 2006, the Supreme Court of Belgium held that judicial notice may be taken as to Polygraph Test results if certain requirements that would assure the reliability of the test and protecting the rights of the accused are satisfied.[101]Thus it may be stated that as the tests are properly regulated and on the satisfaction of certain safeguards, the test results may find entry in court room.

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*Migrants*, Independent Project Trust, South Africa, ( February 18, 2016), p.9, available at http://www.ipt.co.za/pdf/criminal_justice_book.pdf (accessed on 31/08/2017).

98. When position in Belgium is considered, it could be seen that Belgium follows civil law system. But the law in Belgium continues to be modified in consonance with the legislative norms mandated by European Union. The Courts exercise judicial review of legislative acts. European Convention of Human rights have direct application in Belgium criminal justice system. Belgium has directly assimilated ECHR rights without domestic legislation by judicial interpretation. The citizens can invoke those rights in the Convention directly before the national courts. Though, in pretrial stage, the country basically follows inquisitorial procedure held in secret led by Public prosecutor or impartial judge, during trial phase it is predominantly adversarial in nature and prosecution and defence stand on same footing, though judge is very active. Rights of the accused like personal freedom, privacy, legal aid, fair trial and right against nondiscrimination, self-incrimination, torture etc are guaranteed by Belgium Constitution, Criminal Procedure Code and International Human Rights Conventions. There is presumption of innocence of the accused, the burden is on the prosecution and the trial judge must be absolutely convinced of the guilt of the accused. Regarding expert evidence, it is the trial judge who is to decide about the appointment of expert. The defence has the right to make remarks about the expert. For general discussion see, Alec Stone Sweet and Helen Keller, "Assessing the Impact of the ECHR on National Legal Systems," Faculty Scholarship Series, Paper 88, Oxford University Press, USA 2008, available at http://digitalcommons.law.yale.edu/ cgi/viewcontent.cgi? article=1087& context= fss_papers (accessed on 05/10/2017).
99 . Frederic Dehon, "Polygraph in Belgium: An Overview of History and Current Developments," Vol. 36(2), Polygraph, 2007, pp.109-111 at p. 109, available at http:// www.polygraph.org/ assets/docs/APA-Journal.Articles/Vol.36.2007/polygraph%202007%20362.pdf (accessed on 31/10/2017).
100. Ewout H. Meijer and Bruno Verschuere, "The Polygraph and the Detection of Deception," Vol. 10(4), Journal of Forensic Psychological Practice, 2010, pp.325-328 at p.325.
101. Matte Polygraph Service Inc, "Legal Admissibility of Polygraph Test Results," available at http://www.mattepolygraph.com/legal_admissibility.html (accessed on 31/10/2017).

### 3.4.8 *Poland*

Polygraph Test has gained momentum in Poland[102] in law enforcement, military and counter intelligence etc., after its beneficial utilisation in a murder case in 1963.[103] In late 1970's and 1980's research in Polygraph gained momentum in various universities and courts also admitted the results as evidence.[104] In Mid 1990's Polish Polygraph Association was founded with the objective of laying down ethical standards and training and research for Polygraph Examiners in Poland. It has adopted standards of Polygraph examination in criminal cases.[105]

In Poland, Polygraph examination is allowed as investigative method of finding evidence and eliminating suspects.[106] The results of Polygraph examination is admitted in evidence if certain conditions are satisfied.[107] The conditions are that the examination must be done with the consent of the subject[108] and the examination

102 . When position in Poland is analysed, it is found that after amendment in 1st July 2015, Polish Criminal Procedure is more in favour of adversarial system. The most fundamental changes in the Code of Criminal Procedure relate to the rules regarding:(a) conducting investigations like preparing the act of indictment, the evidence gathering process by the prosecution and the plea bargaining (b) the process of criminal trials whereby the courts will not be entitled to play active role in evidentiary part of proceedings (c) new active role of the prosecution and defense in accordance with equality of arms principle especially with reference to evidentiary part of the proceedings.(d)New safeguards for right to defense like court appointed lawyer and limitations on admissibility of illegally obtained evidence. Polish Constitution and Criminal Procedure Code 1997, guarantees several rights to the accused like equal treatment and non discrimination, right to life, right against torture right to legal aid etc. The defendant is presumed to be innocent and it is for the prosecution to prove the guilt. Moreover, Poland is also party to many international conventions like Universal Declaration of Human Rights and is bound by those covenants. Thus presently especially after 2015, Polish Legal System adopts more benevolent approach towards rights of the accused. See, Constitution of Republic of Poland,1997, Arts 32, 33, 38 , 40.See also, Malgorzata Maczka Pacholak, "New Polish Criminal Code," Guest Post ,July1, 2015,available at https://www.fairtrials.org/guest-post-new-polish-criminal-procedure-code/ accessed on (01/09/2017) ; See also, Wojciech Jasiński, "Polish Criminal Process After the Reform," June 2015, available at http://www.hfhr.pl/wp-content/uploads /2015/07/hfhfr_ polish_ criminal_ process_after_the_reform.pdf (accessed on 01/09/2017).

103. Jan Widacki, "Polygraph Examinations in Poland," Vol.1 (1), European Polygraph, 2007, pp. 25-34 at p.27.

104. *ibid.* Jozef Wojcikiewicz "Polygraph In Poland," in Giovanni B. Traverso and Lara Bagnoli, *Psychology and Law in a Changing World: New Trend in Theory, Practice and Research*, Routledge, London, (2001), pp.263-270 at p.264.See also, Marek Leśniak, "Polygraph Examination Studies at the University of Silesia, " Vol.1 (1), European Polygraph, 2007, pp55-64 at p.56.

105. *supra* n. 103.

106. The Code of Penal Procedure, Arts 171 (5) (2); 192 199. Art 199a of the Code also states that the test could be done only with the consent of the parties.

107. *id.* Art. 192a.

108. *id.* Art.199a.

must be performed by an expert[109] and the result must take the form of a report complying with the provisions of Article 200 of The Code of Penal Procedure. The expert must possess professional and moral qualifications.[110]

Public opinion in Poland is in favour of Polygraph examination.[111] The 2003 Amendment to Code of Penal Procedure has actually tipped in favour of acceptability of Polygraph examination as evidence in court[112] and provides a legal basis for conducting Polygraph examination. The studies conducted by the University of Silesia,[113] has revealed that the introduction of Polygraph examination in criminal investigation has brought a change in attitude in police. Before the introduction of the test, police in Poland were criticised as brutal. As maltreated persons could not be subjected to Polygraph Test, torture and third degree has been reduced. The study also revealed that if the tests are conducted immediately after the commission of crime, conclusive results could be obtained.[114]

Though PSE was purchased in Poland in 1990, it is not put in active use. Silesian University has LVA system and they are doing empirical research in estimating the accuracy of the system with respect to population of Poland.[115] There are also more chances for the use of LVA and PSE Tests in Poland in future and research is in progress in the area of Forensic Psychological Tests. It seems that Polygraph test results are admissible in Poland because of favourable public opinion towards these tests and assurance of proper safeguards, competency of experts and research in this area which contributes to the reliability of the test.

109. Dominika Słapczyńska & Piotr Herbowski, "The Significance of Polygraph Methods in Polish Investigations," No.14, Security Dimensions International and National Studies,2015, pp.68-76 at p.72, available at https://www.researchgate.net/profile/Piotr_Herbowski/publication/ (accessed on 01/11/2017).The author states that Polygraph Test can be used especially in criminal cases where the police do not have traditional forensic evidence.
110. Code of Penal Procedure, Arts 193, 195 and 196(10).
111. *supra* n. 103.
112. *ibid*. The 2003 Amendment to the Code of Penal Procedures, has added Articles 192a (2) & 199a.
113. Marek Leśniak, *supra* n. 104.
114. *ibid.* In fact, same opinion was given by forensic psychologists in India also.
115. *ibid.*

## 3.5 Conclusion

Since late Twentieth Century, a positive attitude towards Forensic Psychological Test by countries in the world is evident.[116] It is noticed that in those countries where the tests are prominent in criminal investigation and also where the test results are admitted in evidence, the regulation, the administration, expertise and training of the experts are far more advanced than in India. They also provide adequate safeguards to the subjects who take the tests. For instance in USA, the expertise and efficiency is ensured by legislation and also by providing for proficiency testing and licensing standards of the experts in this field. This means that, proper regulation of the administration of the tests and provisions for adequate safeguards to the subjects are required, for the investigative and evidentiary use of the tests in criminal justice settings. It is also found that in some countries, especially in common law countries, judiciary also try to regulate the use of the tests in the absence of proper legal safeguards, by disallowing this evidence on different grounds like unreliability, inaccuracy and incompetency of the examiners, subjective interpretation and bias of examiners, lack of validation studies and violation of human rights norms. Thus, there is no uniformity among judiciary in different nations as to the reasons for inadmissibility of forensic psychology evidence. However it is found that there is no judicial skepticism as to the use of these tests as investigative aid in most of the countries.

116 . It is found that both common law and Civil Law countries make investigative use of the tests and admit their results. The legal system in the common law countries like Canada and USA are comparable to that of India. But legal system in Japan, Belgium and Poland are not comparable to that of India. However the analysis of Japanese, Belgium and Polish legal system reveals that presently these countries give predominance to the rights of the accused. See, Chrisje Brants and Stijn Franken, "The Protection of Fundamental Human Rights in Criminal Process," Vol.5(2), Utrecht Law Review, October 31,2009, pp.7-65 at p.42,available at https://www.utrechtlawreview.org/articles/10.18352/ulr.102/ (accessed on 01/09/2017).The author states that, it is found that most of the countries irrespective of the legal system they follow, are parties to most of the international human rights conventions and hence bound by the human rights standards provided therein which is applicable with respect to criminal justice process. Thus it may be stated that minimum guarantees as to fair trial is ensured in the criminal justices system of all the countries irrespective of whether they follow accusatorial or inquisitorial system.

In India, Forensic Psychological Tests are conducted only based on court order. The tests are conducted only with consent of the subject as per *Selvi* guidelines and Laboratory Procedure Manual for the respective Tests. Only procedural defect noticed is regarding the absence of lawyer during the administration of the tests. It is found that some laboratories even video graph the whole procedure of Polygraph, over and above *Selvi* guidelines. It is also found that delay and pendency of cases is not an issue as far as these tests are concerned. The study also revealed that the examiners who conduct these tests are qualified and competent. It is found that there is no system of feedback mechanism in Forensic science service as such. The study revealed that there is absence of proper administration of forensic Science Service in India. The Directorate of Forensic Science Service has control only over CFSL's. State Forensic Science Laboratories are mainly under their respective home ministries. The regulation of forensic psychology practice is also in a dormant state. Only two laboratories have NABL accreditation[117] and there is no proficiency testing or licensing standards for the Practitioners of the profession. Moreover there is also no legislation governing Forensic Psychological Tests and Forensic science as such.

At the same time it is also found that in India, out of 38 Laboratories, 14 laboratories have forensic psychology division. It is also found that number of cases and the subjects on whom Forensic psychological Tests are conducted is showing an increasing trend. Government policy is also for establishing more Forensic Psychology divisions and more use of these tests. The study also revealed the requirement for more research and validation studies as to these tests.

Apart from the existing tests, many new tests like Suspect Detection System, Thermal Imaging, etc., are also developed in order to be used in criminal investigation. Government funding is provided in many countries like USA in Neuro projects and research in Forensic psychological Tests is emerging in most of the countries in the world particularly after attack on World Trade Centre, New York. At the same time right against self-incrimination and right to fair trial of the accused which is of paramount importance shall not be overlooked. All these aspects are analysed in the forthcoming chapters.

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117. One is Directorate of Forensic Science, Gujarat. See S.L. Vaya, *supra* n.26.The other is CFSL CBI (Delhi).See, http://cbi.nic.in/cfsl/about.htm .

# Chapter - IV

# FORENSIC PSYCHOLOGICAL TESTS AND RIGHT AGAINST SELF INCRIMINATION

In this chapter an attempt has been made to analyze whether involuntary administration of Forensic Psychological Tests like Polygraph, Neuro Imaging Tests like Brain Electrical Oscillation Signature Profiling Test, Brain Finger Printing, FMRI; Layered Voice Analysis Test and Narco Analysis Test etc. violate right against self-incrimination. The chapter makes a comparative analysis of the position with other common law countries and European Court of Human Rights jurisprudence with Indian position. The chapter further examines how far foregone conclusion theory could be applied with respect to these tests.

## 4.1 Historical Perspective

There are competing versions about the origin of the Right against Self Incrimination. As per some scholars, the privilege evolved from the maxim of canon law *Nemo Tenetur Prodere Seipsum* which is imported from the continent.[1] This means that "no one is obliged to produce himself.[2] This implies that the duty to reveal all sins at confession, as a condition of pardon did not mean that one has to come forward and accuse himself in court.[3] However, once the prosecution is initiated and a person is made an accused and is called as a witness he has to answer truthfully.[4]

In Sixteenth and Seventeenth Centuries, the manifestation of the privilege was closely related to resentment against *ex offcio* oaths prevalent in English prerogative courts such as Star Chamber and High Commission and Ecclesiastical Courts. Generally the purposes of this procedure were to identify and punish those

1. Akhil Reed Amar and Renee B Lettow, "Fifth Amendment First Principles: The Self Incrimination Clause," Vol. 93(5), Michigan Law Review, 1995, pp.857-928 at p.896.
2. A variant of this maxim is *Nemo Tenetur Accusare Seipsum*. This means that no one is obliged to accuse himself. See, Edward. S. Corwin, "The Supreme Courts Construction of the Self Incrimination Clause," Vol.29 (2), Michigan Law Review, December 1930, pp.191-207 at p.194.
3. John H Langbein, "The Historical Origins of the Privilege Against Self Incrimination at Common Law," Vol.92 (5), Michigan Law Review, March 1994, pp.1047-1085 at pp.1071-72.
4. *supra* n. 1.

who were in theological disagreement with the Crown.[5] Hence in john Lilburne's first trial in the Star Chamber, his main objection was that there was no proper accusation against him.[6] He had refused to answer any questions on those matters not included in the information against him. For this, he was publicly flogged, fined and imprisoned.[7] The parliament relented this by abolishing the Star Chamber and the High Commission in 1641.[8] Thus the privilege at that time meant that, a person ought not be put on trial and compelled to answer questions to his detriment, unless he had first been properly accused.[9]

The nature of privilege changed its dimensions in 1648, when there was a revival of Star Chamber tactics by a Special Committee of Parliament which conducted an investigation regarding the loyalty of members whose opinions were offensive to the army leaders. John Lilburne was again tried for treason. During his second trial, he invoked the spirit of *Magna Carta* and also the Petition of Right in 1628 to argue that, even after common law indictment and without oath he need not have to answer questions which are self-incriminatory.[10]

Another version is that, it was only by the end of 18th century and the beginning of 19th century, with the emergence of right to counsel, that right to silence of the accused became meaningful. John H Langbein, who has given more historical insights into this right,[11] had stated that, the practice of requiring the defendants to testify on his own behalf had continued for a long time even though *ex officio* oaths were abolished in 1641. The defendants in criminal court did not have the right to be represented by a lawyer and the right to request the presence of defense witness.[12] Though in later years, the right of an accused to be defended by a lawyer emerged in

5 . Leonard Levy, "The Right Against Self Incrimination: History and Judicial History," Vol. 84 (1) Political Science Quarterly, March 1969, pp. 1-29 at p.13.
6. *supra* n.3.
7 . s*upra* n. 1 at p.897.
8 . This is considered as an important landmark in the evolution of right to silence.
9 . William Holdsworth, *A History of English Law*, Vol. IX, Sweet and Maxwell, London (1937), p.198; Also see, V. R. Jayadevan, " *Selvi* v. *State of Karnataka*: An Extravagant Extension of Right Against Self Incrimination," Journal of Indian legal Thought, 2010, pp.316-325 at p316.
10 . *supra* n.5. See also, *Selvi* v. *State of Karnataka,* (2010) 7 S.C.C.263 at p.318.
11. *supra* n.3 and *Selvi supra*. See also, Eben Moglen, "Taking the Fifth: Reconsidering the Origins of the Constitutional Privilege Against Self-Incrimination," Vol. 92(5), Michigan Law Review, March 1994, pp. 1086-1130, at p.1089.
12. Right to compulsory process.

the common law tradition,[13] the role of the counsel was very much limited in early years. The defense counsel could only help his client with respect to question of law and could not make any representations with respect to the facts of the case. Thus, till the end of eighteenth century and the beginning of nineteenth century, it was "accused speak"[14] rule which was prevailing. It was only with the emergence of right to counsel, that right to silence of the accused became meaningful. [15]

A closer look at that origin and history reveals that there is no general agreement on the historical origin of this right. The historical study revealed that right against self-incrimination is an essential attribute to right to fair trial. The privilege against self-incrimination becomes meaningful only when right to counsel is ensured.[16] The study also revealed that it is confusing to state whether the right against self-incrimination is mainly a trial right.[17] It is also revealed that across different centuries, the right against self-incrimination has profoundly changed its character from right to proper accusation, though, right not to accuse oneself, to the modern right not to respond or testify.[18]

## 4.2 Rationale of Right Against Self Incrimination

Just like historical origin, there is also no general agreement as to the rationale of self-incrimination. An analysis of case laws[19] and scholarly articles[20] reveal that fundamental values underlying the privilege are to protect the persons suspected of crime to cruel trilemma of self-accusation, perjury or contempt;

13. This right emerged with the enactment of Treason Act, 1695. Later, this right to be defended by a lawyer had been extended with respect to many other offences. See also, *Selvi supra* n. 10.
14. *supra* n.3 at p.1048.
15. *supra* n.1 at p.897.
16. *ibid*. Langbein states that the core value of the privilege presupposes an effective right to have another, to speak for the accused.
17. Wigmore in his work "The Privilege Against Self-Incrimination, its Constitutional Affectation, *raison d'etre* and Miscellaneous Implications,"(1960), also stated the same view.cf *supra* n. 3 at p.1062; See, Eben Moglen, *supra* n. 11 at p.1099. See also, *Supra* n. 5 at pp.28-29, in which the Levy states that the right against self-incrimination began as a protest against incriminating interrogation prior to formal accusation.
18. *supra* n. 3 at p.1084. See also, Andrew Ashworth, *Human Rights, Serious Crime and Criminal Procedure*, Hamlyn Lecture Series, Fifty Series, The Hamlyn Trust, Sweet and Maxwell, Oxford, UK, 2002, p.18.
19. *Murphy* v. *Waterfront Comm'n*, 378 U.S. 52, 55 (1964); *see also Couch* v. *United States*, 409 U.S. 322, 328 (1973).
20. J. Jackson, "Re-Conceptualizing the Right of Silence as an Effective Fair Trial Standard," Vol.58 (4), International and Comparative Law Quarterly, October 2009, pp.835-861 at pp. 841–849. See also, Stijn Lamberigts, "The Privilege Against Self-Incrimination: A Chameleon of Criminal Procedure," Vol. 7(4), New Journal of European Criminal Law, December 2016, pp.418-438 at p.419.

preference to accusatorial than inquisitorial system of criminal justice; to prevent inhuman treatment and abuses, to maintain fair state individual balance, to protect the inviolability of human personality and the right of each individual to private enclave whereby he may lead a private life and to protect from self-deprecatory statements.

It is also stated that, the privilege also has in its objective to ensure voluntariness and reliability of the evidence. Thus it may be stated that there is no general theoretical justification underlying the privilege and none of the justifications could conceptually explain the right to the fullest extent.[21]

### 4.3 Privacy Rationale of Privilege Against Self Incrimination

The idea that privilege against self-incrimination protects right to privacy has received much support in scholarly literature [22]and also in case laws.[23] But this view is criticized by several scholars. For instance, Alan and Mace, in their scholarly article have discussed about privacy as core value and also as indicator of

21. Allen and Mace, states that an innocent person never faces any trilemma; there is no simple dichotomy between inquisitorial and accusatorial systems; the Government never has had to shoulder the entire load; law always mould and shape human personality and hence human personality is far from being inviolable. Thus none of the justifications could conceptually explain the right to the fullest extent. See Ronald J. Allen and M. Kristin Mace**, "**The Self-Incrimination Clause Explained and Its Future Predicted," Vol.94 (2), Journal of Criminal Law and Criminology, 2004, pp.243-293 at p.245.Similarly, Michael Pardo in his article, had also stated that "there is no one essential value that the privilege protects." Micheal Pardo, "Disentangling the Fourth Amendment and the Self Incrimination Clause," Vol. 90, Iowa Law Review, 2005, pp. 1857-1903 at p.1874.Amar and Lettow wrote, "[t]he Self-Incrimination Clause of the Fifth Amendment is an unsolved riddle of vast proportions, a Gordian knot in the middle of our Bill of Right *Supra* n. 1. See also, William J. Stuntz, "Self-Incrimination and Excuse," Vol. 88 (6), Columbia Law Review, October 1988, pp.1227-1296 at p.1228. See also Stephen A. Saltzburg, "The Required Records Doctrine: Its Lessons for the Privilege Against Self-Incrimination," Vol. 53, The University of Chicago Law Review, 1986, pp.6-44 at pp.6-10.
22. Ian Dennis, "Instrumental Protection, Human Right or Functional Necessity? Reassessing the Privilege Against Self-Incrimination," Vol. 54 ( 2 ),The Cambridge Law Journal, July 1995, pp. 342-376 at pp.356-358.; Peter Arenella *"Schmerber* and The Privilege Against Self-Incrimination: A Reappraisal," Vol.20, American Criminal Law Review,1982-83,pp.31-61 at p.40. Hence as per this view, privacy is sufficiently important to justify duty on others to respect it. Thus it may provide a ground for the privilege against self-incrimination. This means that police have no special relationship with the suspect that they have no claim on the information about the suspects action, thoughts etc., other than the general claim based on societal interest in crime control. This interest of police is not generally sufficient to justify serious incursions into privacy especially if incursion is into the consciousnesses through prolonged questioning.
23. *See Murphy supra* n.19.See also *United States* v. *Nobles*, 422 U.S. 225, 233 (1975), wherein it was discussed about the Fifth Amendment as a protection of the individual's "private inner sanctum"; Also See, *Bellis* v. *United States*, 417 U.S.85, 90-91 (1974); *Couch* v. *United States*, 409 U.S. 322, 327 (1973) and *United States* v. *White*, 322 U.S. 694, 698 (1944).

testimony.[24] They state that privacy could not explain why the privilege applies when it does, irrespective of the fact whether or not privacy is a core Fifth Amendment value.[25] For instance privacy interest would obviously include right to exclude the state from extracting what is inside one's body like blood. But privacy rationale does not explain why state is permitted from extracting physical evidence without violating the privilege.[26]

In order to avoid these types of issues, scholars like Professor Arenella, had argued that it is "mental privacy" as distinguished from physical privacy which is at the heart of the privilege.[27] He had stated that privilege should apply "where the state forces the accused to disclose involuntarily his private thoughts, feelings and beliefs about the crime charged and then proposes to make testimonial use of these extracted thoughts."[28] But many scholars like Allen and Mace states that, though Arenella's mental privacy plus testimonial use test seems appropriate, this theory is also unable to overcome the main problems of privacy based approaches.[29] They state that Government has a right "to every man's evidence,"[30] even if it is incriminatory to another person. Similarly state can also compel self-incriminatory testimony with the grant of immunity.[31] This means that state can demand evidence from every area of our personal life. So it is hard to state that privacy is a "guidepost" for identifying the privilege.[32] Same view is taken by Ian Dennis[33] also. Regarding the argument that privilege protects mental privacy, he states that this theory is still problematic. He asks how privilege could extend to private documents which exist independently of the suspect's consciousness. Similarly, though privilege protects compelled disclosure, but if immunity is granted, the privilege could be overridden. This means

24. Ronald J. Allen and M. Kristin Mace**,** *supra* n. 21.
25. *ibid.*
26. Peter Arenella, *supra* n. 22.
27. *id.* at pp.41-42.
28. *ibid.*
29 . Ronald J. Allen and M. Kristin Mace**,** *supra* n. 21.
30. *ibid.*
31 . Same view was taken by Stunz, See William J. Stuntz, *supra* n. 21.See also Nita Farahany, "Incriminating Thoughts," Vol. 64, Stanford Law Review, February 2012, pp.351-408 at p.362. See also, Dan Terzain, "Fifth Amendment, Encryption and the Forgotten State Interest," Vol. 61, UCLA Law Review Discourse, 2014, pp.298-312 at pp.306-307, available at https://papers.ssrn.com/sol3/papers.cfm?abstract_id=2350669 ( accessed on 20/09/2017).
32. William J. Stuntz, *supra* n. 21.
33. Ian Dennis, *supra* n. 22.Same view was taken by William Stunz also. See *ibid.*

that the Government may invade the sovereignty of the contents of one's mind or curtail volitional control. All these points out that privilege do not protect mental privacy.[34]

Moreover, it is also important to note that US Supreme Court had raised considerable doubt as to the privacy rationale of self-incrimination.[35] In *Re Grand Jury Subponea Duces Tecum,*[36] the Court observed that "we cannot cut Fifth Amendment completely loose from the moorings of its language and make it serve as a general protector of privacy- a word not mentioned in its text and a concept directly addressed in the Fourth Amendment. We adhere to the view that the Fifth Amendment protects against compelled self-incrimination and not the disclosure of private information."[37] All these would show that privacy rationale cannot give a proper explanation to Fifth Amendment privilege. Thus it can be stated that the protection of privilege is significantly incomplete if privacy theory is correct.[38]

## 4.4 Right Against Self Incrimination Under International Human Rights Instruments

In most of the international human rights instruments[39] this right is recognized. The International Covenant on Civil and Political Rights guarantees the right of everyone "not to be compelled to testify against himself or confess guilt."[40] The Human Rights Committee[41] had held that the right under Article 14(3) (g) must be understood in terms of the absence of any direct or indirect physical or psychological pressure from the investigating authorities on the accused, with a view

34. Same view was taken by Michael Pardo. He stated that Fifth Amendment does not protect person's sovereignty over the contents of mind or any form of curtailment of volitional control. For instance, when Government wants someone's content of mind which may incriminate a third party or when Government grants someone immunity, there is invasion of sovereignty of contents of mind. Micheal Pardo, *supra* n. 21.
35. *Fisher* v. *United States*, 425 U.S. 391 (1976).
36. *Re Grand Jury Subponea Duces Tecum,* 1 F.3d 87 (2d Cir. 1993).
37. *id*. at p.93.
38. Micheal Pardo, *supra* n. 21.
39 The Universal Declaration on Human Rights 1948, Art. 11.1 reads "everyone charged with a penal offence has the right to be presumed innocent until proved guilty according to law in a public trial at which he has had all the guarantees necessary for his defense". UN Guidelines on the Role of Prosecutors 1990, Guideline. 16.
40. International Convention on Civil and Political Rights 1966, Art. 14(3) (g).
41. Human Rights Committee is the body of Independent Experts which monitors the implementation of International Convention on Civil and Political Rights 1966, by the state parties.

to obtain a confession from the accused.[42] However merely urging to tell the truth will not amount to violation of right against self-incrimination.[43]

International criminal law has also given much prominence to right to silence. The Rules of Procedure and Evidence adopted by the Criminal Tribunals established by UN Security Council for the Former Yugoslavia and Rwanda provide expressly, the right to silence during investigation stage.[44] Rome Statute not only confers right to silence but also provides that silence cannot be considered in the determination of guilt or innocence.[45] This right is also recognized in American Convention on Human Rights, 1969[46] and is also found expression in the constitution and statutes of many common law countries.[47]

Thus it may be stated that as per the international human rights instruments a suspect must in no time and in no circumstances, be compelled to incriminate himself or to confess guilt and that he has the right to remain silent at all times.[48]

42. *A Berry* v. *Jamaica*, Communication No. 330/1998, ( views adopted in 7 April 1994) in UN doc. GAOR, A/49/40 (Vol. II), p.28, para 11.7, available at http://hrlibrary. umn.edu/undocs /html/vws330.htm (accessed on 04/11/2017).Office of High Commissioner of Human Rights, *Human Rights in the Administration of Justice : A Manual on Human Rights for Judges, Prosecutors and Lawyers*, Professional Training Series No.9,United Nations, Geneva, (2003), p.240, available at http://www.ohchr.org/Documents/Publications/training9Titleen.pdf (accessed on 18/06/2013). In *H. Conteris*, Communication No. 139/1983 (Views adopted on 17 July 1985). UN doc. GAOR, A/40/40, p.202, para 10 read in conjunction with p.201, available at http://hrlibrary.umn.edu/undocs/session40/139-1983.htm (accessed on 04/11/2017). The Committee had stated that where a person had been forced by means of torture to confess his guilt, Art. 14(3) (g) is violated.
43. *Castillo Petrzzi et al.* v. *Peru*, (Merits), Inter-Am. Ct HR, 30 May 1999, Ser. *C, No. 52*, available at http://www.corteidh.or.cr/docs/casos/articulos/seriec_52_ing.pdf ( accessed on 19/12/2017).See also, Office of High Commissioner of Human Rights, *supra*.
44. Rules of Procedure and Evidence, 1995, International Criminal Tribunal for Rwanda, Rule 42 and Rules of Procedure and Evidence, 2001, International Criminal Tribunal for the Former Yugoslavia, Rule 42.
45. Rome Statute of the International Criminal Court 1998, Art. 66 (presumption of innocence) and Art.67 (Right to remain silent, without such silence being a consideration in the determination of guilt or innocence).
46. American Convention on Human Rights 1969, Art. 8(2) (g), according to which "[...] During the proceedings, every person is entitled, with full equality, to the following minimum guarantees: the right not to be compelled to be a witness against himself or to plead guilty; A confession of guilt by the accused shall be valid only if it is made without coercion of any kind."
47. For instance in the Fifth Amendment of US constitution, Section 11 (c) of The Canadian Charter of Rights and Freedom, 1982, Section 25(d) of The New Zealand Bill of Rights, 1990 and in Human rights statutes in Australia like Human Rights Act 2004 (ACT); Charter of Human Rights and Responsibilities Act 2006 (Vic) S. 22(2) (i) and S. 25(2)(k)and in UK, in Human Rights Act, 1998.
48. Office of High Commissioner of Human Rights, *supra* n. 42 at p.243.

## 4.5 Forensic Psychological Tests and Right Against Self Incrimination

Under this head, position under European Convention, common law countries and Indian position are analysed.

### *4.5.1 Position Under European Convention*

As far as right against self-incrimination is concerned, European Convention on Human Rights,[49] do not explicitly provide for this right. However, this right is considered as implicit in Article 6 which guarantees right to fair trial.[50] This right extends to the whole of criminal proceedings including the investigation stage.[51]The applies only to a person charged with criminal offence.[52] The concept of criminal charge under the convention has an autonomous meaning independent of the categorizations employed by the member states.[53]

The European Court on Human Rights[54] has defined charge as official notification given to an individual by a competent authority of an allegation that he has committed an offence.[55] In *Brusco* v. *France*[56] it was held that a person in police custody who is required to swear an oath before being questioned as a witness was already the subject of a criminal charge and hence had the right to remain silent.[57]

49. Herein after referred to as ECHR.
50. In *Funke* v. *France*, (Application No. 10828/84), [1993] 17 EHRR 251. Strasbourg Court for the first time recognizes right against self-incrimination as part of right to fair trial. In this case, the applicant was suspected of tax evasion and the authorities demanded details of his bank account. On his failure, the French court imposed him with fine. The court held that though not mentioned in Art.6 of the Convention, the right to silence and right against self-incrimination are generally recognized international standards which lie at the heart of the notion of a fair procedure under Art.6.
51. Right to silence also extends to police questioning. See *John Murray* v. *The United Kingdom*, [1996] ECHR 3, para 45.
52. The term charged with criminal offence is given wider interpretation. See, Council of Europe, European Court of Human rights, *Guide on Article 6 of the Convention – Right to a Fair Trial (Criminal Limb)*, Council of Europe, European Court of Human rights, Strasbourg, (2014), p 7, available at https://rm.coe.int/1680304c4e (accessed on 01/09/2017).
53. In order to assess the applicability of criminal aspect of Art.6 of the Convention, the court has adopted certain criteria. They are 1. Classification in domestic law 2. The nature of the offence, 3. The severity of the penalty which the concerned person risks incurring. See, *ibid*. Also see *Engel and Others* v. *The Netherlands*, [1976] ECHR 3 at §§ 82-83.See also David Bentley and Richard Thomas, " Fair Trial," in Madeleine Colvin and Jonathan Cooper, *Human Rights in the Investigation and Prosecution of Crime*, Oxford University Press, New York, (2009), pp. 251-284 at p. 253.
54. Herein after referred as ECtHR.
55. *Deweer* v. *Belgium*, (1980) 2 EHRR 239 §§ 42 and 46 ; *Eckle* v. *Germany*, [1982] ECHR 4.
56. [2010] ECHR 1621.
57. *supra* n. 52.

This means that right to silence begins from the stage at which the suspect is questioned by the police.[58]

As per Strasbourg Court jurisprudence, this right aims at protecting accused, from compulsion from authorities so as to avoid miscarriage of justice.[59] In *Saunders* v. *UK,*[60] the European Court clarified the scope of this right and held that the privilege implies that the prosecution must prove the case against the accused without resorting to "evidence obtained through methods of coercion or oppression in defiance of the will of the accused."[61] In this case, the accused was investigated under The Companies Act, 1985, as he had been suspected of illegally boosting the price of shares in his company. The Act empowers the authorities to compel production of documents from suspect and also to answer questions put to him, the refusal of which would make him liable for contempt. The Act also permitted the use of the answers to be used against the suspect. The accused cooperated with the authorities and provided information, which was subsequently used in a criminal prosecution against him and was convicted. The European Court held that use of the answers which was compulsorily obtained in non-judicial proceedings to incriminate the accused during the trial proceedings amounts to violation of the Basic principles of Fair Procedure under Article 6.[62] Thus right against self-incrimination under European Convention is made up of the "right to silence along with the entitlement

58. *ibid.*
59. *ibid*; See also, *supra* n. 51*; Heaney and McGuinness* v. *Ireland*, No. 34720/1997, [2000] ECHR 684, para 40.
60 . *Saunders* v. *UK*, [1996] ECHR 65, para 68.
61 But it does not extend to use in criminal proceedings of the materials which may be obtained from the accused through the use of compulsory process , but which has existence independent of the will of the accused like documents obtained in pursuant of a warrant, breath, blood and urine samples and bodily tissues etc. See, *ibid; See also, Allan* v. *The United Kingdom*, [2002] ECHR 702, para 44.In *Allan*, evidence was obtained through a police informant placed in the cell of the accused who pushed the accused to confess. The court held that evidence is obtained in defiance of the will of the accused and its use in the trial affects right to silence and right against self-incrimination.
62. *supra* n. 60; *Heaney and McGuinness*, *supra* n. 59.In all these cases, the court was dealing with use immunity. Use immunity means, though suspect can be subjected to sanctions like fine, held for contempt etc., for refusing to provide information, the information so obtained cannot be used in courts. In *Heaney*, the accused were found close to the scene of terrorist bombing. Under Irish law they could be asked to give details of their movements in preceding 24 hours, the refusal of which would amount to criminal offence. Court held that there is breach of the Convention. See also, Andrew Ashworth and Mike RedMayne, *The Criminal Process*, Oxford University Press, UK, (4th edn.,2010), pp.147-148.

not to be compelled to confess guilt."[63] The right also implies right against use of evidence obtained through methods of coercion in defiance of the will of the accused.

Thus, as per ECtHR's view, right against self-incrimination is a restricted right. It is restricted to right to silence.[64] Similarly, it does not prevent compulsory production of material evidence like blood, bodily samples, documents etc.[65] As to the scope of right against Self-incrimination, analysis of Strasbourg Court decisions, reveals that it stresses on evidence which depend "on the will of the defendant."[66] It appears that the key distinction which the court stresses is that the right does not apply to evidence which exists independently of the will of the accused such as bodily samples, urine, hair samples, voice samples, documents etc., obtained in response to a warrant.[67] In *P G and J.H.* v. *The United Kingdom*,[68] the Strasbourg Court had referred to voice samples. The court held that it do not amount to any incriminating statements and is similar to that of blood, hair etc., used in forensic analysis with respect to which the privilege do not apply.

But the main criticism is that the court does not give much guidance as to the dividing line between evidence that exist dependent or independent of will with respect to physiological process as in the case of Forensic Psychological Tests.[69] But

63. As explained, for example, in, The Commission of the European Communities, *Green Paper: The Presumption of Innocence*, EC Doc. COM(2006) 174 final, (2007), p.7, available at http://eur-lex.europa.eu/legal-content/EN/TXT/?uri=LEGISSUM:l16032 ( accessed on 01/09/2017).See also Richard Stone, *Civil Liberties and Human Rights*, Oxford University Press, UK,(10th edn., 2014), pp.150-153.
64. Organization for Security and Co-operation in Europe, *Legal Digest of International Fair Trial Rights*, Office of Democratic Institutions and Human Rights, Poland, (September, 2012), p. 152, available at http://www.osce.org/odihr/94214 (accessed on 01/09/2017).
65. *supra* n. 60; *O'Halloran and Francis* v. *The United Kingdom*, [GC], [2007] ECHR 545. See also, Andrew Ashworth and Mike RedMayne, *supra* n. 62 at p.149.
66. *supra* n. 60, the court connected right to remain silence with defendants will. The Court has also granted protection from compulsion by the drawing of adverse references against the defendant when they have made use of the right to remain silent. See also *John Murray*, *supra* n. 51.
67. *supra* n. 60. *Jalloh* v. *Germany*, [2006] ECHR 721.
68. *P. G. and J. H.* v. *The United Kingdom*, [2001] ECHR 550.
69. Petar Lozev, "To What Extent is the Taking and Use of Neuro Scientific Evidence Compatible With the Rights Enshrined in the European Convention of Human Rights?," Vol.5, Marble Research Papers, (2014), pp.141-166 at p.146, available at, http://openjournals. maastrichtuniversity.nl/Marble/article/view/212/159 (accessed on 01/09/2017). **I**t is difficult to say on which side, these tests fall. The author states that problem with a rationale based on respecting the will of the accused with respect to right against self-incrimination is that it is difficult to find a clear and coherent dividing line between what State conduct may be said to

it is also possible to argue that European Courts jurisprudence is more consistent in this regard than it might appear to be.[70] For instance in *Saunders*, Court stated that documents acquired pursuant to warrant are outside the scope of the privilege. In *Funke*, it was observed that being unable or unwilling to procure the documents by some other means, the authorities attempted to compel the accused himself to provide the evidence of the offence alleged against him which has resulted in infringement of right against self-incrimination.[71]. Thus, analysis of Strasbourg Court jurisprudence reveals that, what is considered as objectionable by the court is the placing of legal obligation on the accused to cooperate with the authorities by conveying the incriminating information. Hence it may be stated that, the right against self-incrimination is, means based and not material based.[72] The privilege prohibits a particular means of acquiring information rather than a particular type of material.[73]

Another issue which assumes importance, in the light of European Court's jurisprudence, is whether privilege is absolute.[74] When cases like *Saunders* and *Heaney* are considered, the court denied reasons like public interest in the need to investigate crimes like serious fraud or terrorist bombing so as to justify the infringement of the privilege.[75] Though in *Heaney*, it was stated that the privilege is not absolute, it was also suggested that the abrogation of the privilege must not destroy its very essence.[76] In *Jalloh*,[77] court adopted a balancing approach. In this case, the suspect was forcibly administered emetics when he was seen to swallow a tiny bag suspected to contain drugs. In this case, court applied balancing test and

respect the will and what does not. In his dissenting opinion in *Saunders*, Judge Martens questioned the distinction between the use of material obtained by legal compulsion such as blood and urine samples and the use of material obtained in defiance of the will. In both cases the will of the suspect is not respected in that he is forced to bring about his own conviction. See also, J. Jackson, *supra* n. 20 at p.837.

70. Andrew Ashworth and Mike RedMayne, *supra* n. 62 at p.151.
71. *ibid.*
72. *ibid.*
73. This aspect is discussed in detail in next chapter. It is argued that process based approach of interpretation of self-incrimination clause is more appropriate in this era of science and Technology.
74. Petar Lozev, *supra* n.69 at p.149. It is stated that European courts Jurisprudence in this regard is not satisfactory.
75. *ibid.*
76. *Heaney*, *supra* n. 59.
77. *Jalloh ,supra* n. 67.

held that the privilege could be infringed in public interest. However as this case involved only minor drug dealing offence, with accused receiving only suspended sentence as punishment, the breach was not justified.[78] The court held that to determine whether the proceedings are fair, the court would weigh the public interest in the investigation and punishment of offender, against the individual interest. Court also stipulated wide range of factors to be considered to determine whether the right against self-incrimination is violated, like nature and degree of compulsion, existence of the relevant procedural safeguards and the use to which the material so obtained is put, are considered.[79]

This approach is reaffirmed in *O' Halloran and Francis*[80] by the Grand Chamber, when it held that it could not accept that any direct compulsion requiring an accused to make incriminating statements would automatically violate the privilege. It may be stated that the approach of Strasbourg Court regarding right against self-incrimination is more of balancing one. In order to determine there is violation of the privilege court considers various factors like nature and degree of compulsion used to obtain the evidence , Weight of the public interest involved in the investigation and punishment of the offence, the existence of relevant procedural safeguards[81] and the use to which the material so obtained is put.[82] But public interest

78. Petar Lozev, *supra* n. 69 at p.149.

79 . *Jalloh, supra* 67; See, *O'Halloran and Francis supra* n. 65.This approach is different from the approach taken by the court in earlier cases like *John Murray supra* n.51 and *Heaney and Mc Guinness, supra* 59. In *John Murray*, the court had made it clear that warning suspects that adverse inferences may be drawn against them at their trial amounted to an indirect form of compulsion which did not necessarily destroy the very essence of the privilege. In *Heaney and Mc Guinness*, the Court took the view that compelling persons to account for their movements in the interests of averting terrorism under the Offences Against the State Act did destroy the very essence of the privilege and the security and public order concerns of the government could not justify a provision which extinguished this essence. This means that if infringement goes to the essence of the privilege, it cannot be justified on the ground of violating public interest. See also, John Jackson, *supra* n. 20 at p. 838.

80. *O' Halloran and Francis, supra* n.65. The central issue in each of two applications brought in this case was whether the privilege was violated when the registered keeper of a car was required under United Kingdom road traffic law to furnish the name and address of the driver of the car when it was caught speeding on camera. The first applicant, O'Halloran, admitted he was the driver on the occasion in question and he had argued unsuccessfully at his trial that his confession should be excluded because his privilege against self-incrimination had been violated. The second applicant, Francis, on the other hand, was convicted for refusing to supply the information required. The European Court held that there is no breach of privilege.

81. Whether the person had access to legal advice at the time they chose to remain silent is also relevant. See, *Averill* v. *United Kingdom*, [2000] ECHR 212.

82 . *Allan ,supra* n.61.

cannot justify measures which extinguish the very essence of defendant's rights including right against self-incrimination.[83] Hence the determining factor is whether very essence of accused's right against self-incrimination is infringed by the state action.

Thus it may be stated that, the approach of Strasbourg court regarding right against self-incrimination is qualified in nature.[84] What is prohibited under ECHR jurisprudence is improper compulsion[85], which may take the form of physical force for obtaining information or evidence[86]; requiring the accused to give evidence which may be used at trial by law[87]; threat[88] or imposition[89] of criminal sanction, whether he is later prosecuted or not; a rule permitting adverse inference to be drawn from the silence of the accused[90] etc. Thus compulsion is considered as improper, "if the very essence of the right not to incriminate oneself is destroyed."[91] The trend of the court seems to be a balancing approach and to assess whether the essence of privilege is violated by the state action.

When Forensic Psychological Tests are considered in the light of ECHR jurisprudence, it could be seen that blood flow[92] or electrical activity in the brain[93] or change in blood pressure, heart beat etc. are controlled by processes which are not part of our conscious thought processes. Thus it may be stated that these tests could be compared to that of blood test[94] or body temperature tests aimed at determining

83 . *Jalloh, supra* n. 67.
84. John Jackson, *supra* n. 20.
85. For discussion See, D.J. Harris, *et.al.*, *Law of The European Convention on Human Rights*, Oxford University Press, New York, (2nd edn., 2009), pp.260-261.
86. *Jalloh, supra* n. 67.
87. *John Murray, supra* n. 51.
88. *Saunders ,supra* n. 60.
89. *Funke, supra* n. 50.
90. This is right to silence. The right against self-incrimination and right to silence, though inextricably linked, in the context of ECHR jurisprudence, both are considered as separate rights. Former, is right against compelled evidence whereas latter is the right against adverse inference to be drawn from the silence of the accused. See, Paul Bogan, "Self Incrimination, The Right to Silence And The Reverse Burden of Proof," in Madeleine Colvin and Jonathan Cooper, *Human Rights in the Investigation and Prosecution of Crime*, Oxford University Press, New York, (2009), at pp. 347-375 at pp.347, 358-361.
91. *supra* n. 85.
92. We do not generally have the power to direct our blood flow to subcortical areas (Goebel, 2013). See, Petar Lozev, *supra* n. 69 at p.146.
93. We cannot control the electrical signals within our brain that occur in such a quick fashion as measured by Brain Fingerprinting. See, *ibid.*
94. Such as the test to determine whether one has high levels of alcohol in their blood.

the state of the person at a particular time.[95] Hence according to this line of reasoning, evidence obtained by tests like Polygraph, FMRI etc. should be considered as real evidence.[96] Thus brain's regional increases in blood flow, electrical activity, heartbeat, blood pressure etc. are independent of our will. Since these evidence are based on these tests do not depend on the will of the person subjected to the tests, he has no control over its transmission. Therefore there is no violation of right against self-incrimination on the basis of ECt HR's case laws in this regard with respect to Forensic Psychological Tests.[97]

It could also be seen that administering these tests satisfies conditions like public interest requirement, existence of procedural safeguards, use to which materials are put etc. The empirical study has revealed that only with the consent of the subjects, the tests are conducted. The tests are conducted only in very serious offences where public interests are involved. The investigating officers also follow the procedural safeguards and the tests are conducted only with the permission of the court.[98] Hence these tests may not be considered as violative of Article 6.

### *4.5.2 Position in Common Law countries*

Under this head, position in England, USA, Canada and Australia are analysed.

#### 4.5.2.1. *Position in England*

In England, Forensic Psychological Tests are not used in criminal investigation settings. Direct criminal cases which have considered the constitutionality of any of the Forensic Psychological Tests are not reported there. But if English case laws on right against self-incrimination are analyzed, it could be seen that English Jurisprudence is similar to that of European Convention on Human Rights jurisprudence and the test is whether the incriminating material existed independent of the will of the accused. For instance, in *R* v. *S and A*,[99] where this issue was probed, the accused who was suspected of his involvement in terrorist activity, was required under Section 49 of Regulation of Investigatory Powers Act,

95. Petar Lozev, *supra* n. 69 at p. 149.
96. *id.* at p.148.
97. *id.* at p. 149. The author stated this opinion with respect to neuro imaging test evidence.
98. As per the guidelines laid down in *Selvi* decision. See, *Selvi*, *supra* n. 10.
99 . [2009] 1 All E.R. 716.

2000, to provide encryption key, so that the authorities could access the encrypted files on his computer. The Statute also stipulates punishment for failure on the part of the accused to comply with the directions of the investigating authorities. In this case, Court of Appeal held that key has an existence independent of the will of the accused, even when it is retained only in the memory of the accused. Key to the computer equipment is not different from that of locked drawer. Just as, the contents of the drawer exists independently of the suspect, so does the key to it. Similarly, just as blood or urine samples provided by a person may or may not reveal the alcohol level of the person, whether the accused's computers contain incriminating material or not, the keys to them remained as an independent fact. If this dictum is taken, it may be stated that blood pressure, electrical activity in the brain or blood flow in the brain or the voice samples, though may or may not help in getting incriminatory information, exists independently of the will of the accused just like encrypted key in *S and A* case. Hence none of the Forensic Psychological Tests may be considered as violative of right against self-incrimination.

It is also important to note that right to silence is also a limited right in England. It could be seen that in late 1980's the Criminal Evidence (Northern Ireland) Order, 1988 was amended which permitted inference to be drawn from the silence of an accused where he had a duty to speak. Similar amendments were later carried out in Criminal Justice and Public order Act, 1994.[100] The matter came up before the House of Lords in *John Murray* v. *D.P.P.*[101] Lord Mustill observed that though the statute enabled proper inferences to be drawn from the silence of the

100 Ss. 34 to 37 of the Criminal Justice and Public order Act, 1994 - permits "proper inferences" to be drawn from the silence of the suspect during interrogation or during the trial. The court and the jury could take silence of the accused into consideration. Both 1988 Order, Article 3 and 1994 Act Section 34, allow the court to draw whatever inferences "appear proper" from the accused's silence in four sets of circumstances. First, when the accused fails to mention during questioning or upon charge any fact which he or she later relies in his or her defence at trial, if under the circumstances, he or she would have been "reasonably expected" to mention that fact. Second, as per 1988 Order, Article 4 and 1994 Act, Section 35, where the accused refuses to be sworn or to answer any questions at his or her trial. Third, 1988 Order, Article 5 and 1994 Act, Section 36 provides that where the accused fails to account for any objects, substances or marks upon him or her, or upon his or her clothing, or in his or her possession at the time of his or her arrest. Fourth, as per 1988 Order, Article 6 and 1994 Act, Section 37,where the accused fails to account for his or her presence at a particular place. The 1994 Act contains three safeguards: 1.No adverse inferences can be drawn against child defendants or defendants with certain physical or mental conditions; 2.A defendant cannot be convicted solely on an inference drawn from his silence; and 3. A failure to testify cannot give rise to criminal prosecution for contempt.

101 (1993) 97 Cr App R 151.

accused, it was first necessary to ensure that a prima facie case is made out against the accused. Only then, the amended provisions could be resorted to for the purpose of drawing conclusions about the guilt of the accused. The court stressed on adopting a common sense approach and not arriving at finding of guilt merely on the silence of the accused. On appeal, The European Court of Human Rights in *John Murray* v. *UK*[102] held that the trial judge cannot draw an adverse inference merely on account of silence of the accused and that the guilt of the accused must be prima facie established by the prosecution. An additional condition was laid down that, the amended provisions could not be resorted to, unless it was shown that that the accused was given an opportunity to call for an attorney at the time when he was interrogated by the police or at the time of trial.

After this decision, the English parliament had amended Criminal Justice and Public Order Act,1994, by the Youth Justice and Criminal Evidence Act,1999, by introducing provisions requiring the suspect or the accused to be informed of his right to call for an attorney.[103] In a subsequent decision, *Condron* v. *UK*, [104] which directly arouse under the Criminal Justice and Public order Act, 1994, the court relying upon the judgment in *Murray's* case stated that the right to silence was not an absolute right. But, at the same time, a prima facie case must be made out and safeguards like giving opportunity to the accused or suspect to call for a lawyer must be followed.

Thus, it may be stated that UK courts adopts, ECHR jurisprudence regarding the scope of right against self-incrimination and the determining factor is whether incriminating materials existed independent of the will of the accused. If this test is adopted noninvasive Forensic Psychological Tests cannot be considered as violative

102. *supra* n. 51.In this case, the accused had remained silent under police questioning and also at trial.
103. It is important to note that Human Rights Committee in its review of fourth periodic report stated that UK's modification of right to silence in allowing the judge and jury to draw adverse inference in certain situations "violate various provisions of the covenant dealing with the right to fair trial, in spite of range of safeguards built into legislation and the rules enacted there under." See, Eileen Skinnider and Frances Gordon, "The Right to Silence – International Norms and Domestic Realities," (Paper Presented at The International Centre for Criminal Law Reform and Criminal Justice Policy, Beijing, 16-25 October, 2001) at p.19, available at http://icclr.law.ubc.ca/sites/icclr.law.ubc.ca/files/publications/pdfs/Paper1_0.PDF (accessed on 01/09/2017).
104. *Condron* v. *UK*, [2000] ECHR 191.

of right against self-incrimination. It is also found that the right to silence in UK is not an absolute right.[105] However, for adverse inference to be drawn from the silence of the accused only when prima facie case must be made out and it must also be ensured that certain procedural safeguards like giving opportunity to call attorney etc are satisfied.

#### 4.5.2.2. *Position in USA*

In United States, the Fifth Amendment guarantees the right against self-incrimination. US Supreme Court has interpreted the self-incrimination clause more broadly than even the framers of the Constitution had intended. For instance, in *Miranda* v. *Arizona,*[106] the court held that any statements made by the accused while in police custody before trial would be inadmissible unless police give them warning that they have

(i) The right to remain silent
(ii) The right to consult a lawyer before questioned by the police
(iii) The right to have a lawyer present during police questioning
(iv) Right to a court appointed lawyer if the accused cannot afford
(v) Right to be informed that any statement which they make can and would be used in prosecution.

It is pertinent to note that a suspect who has given consent for questioning may withdraw his consent at any time. If consent is withdrawn, the police must stop questioning. At the trial the prosecution must prove that *Miranda* warning was given and that the accused gave the statement to the police only after he has "knowingly and intelligently" waived his rights. Though these principles are not explicitly provided in Fifth Amendment, they have become integral part of the Amendment by virtue of judicial decisions.[107]

105 Robin C.A.White and Clare Ovey, *The European Convention on Human Rights*, Oxford University Press, New York, ( 5th edn., 2010), pp.384-386.

106. 384 U.S. 436 (1966).

107. Prior to *Miranda*, a confession was excluded only where it was established by evidence that it had been made as a result of actual coercion, threat or promise. The Supreme Court decision departed from this rule and established an irrebuttable presumption that a statement was involuntary, if taken in custody by the police without a "*Miranda* warning." Even where a confession could otherwise be proven to be voluntary and not the result of threat, coercion or promise, it would be excluded in the absence of the proper warning.

In *Dickerson* v. *United States,*[108] the US Supreme Court had laid down that *Miranda* decision was based on Fifth Amendment principles and hence they could not be legislatively overturned. In 1968, a law was passed by which voluntariness as a test for admitting confession in federal courts was restored. The law was lying dormant till 1999. The US Supreme Court in this case recognized the importance of *Miranda* rule in US law. The Court held that only if there is special justification, the judicial precedents would be overruled. As there is no special justification, *Miranda* rule need not be overruled.

However, in spite of this decision, the controversy over *Miranda* has not abated.[109] The issue again came before the Supreme Court in *Martinez* v. *Chavez.*[110] In that case the suspect was questioned by the police officer without giving *Miranda* warning. Court held that police officer had not violated Fifth Amendment by failing to give *Miranda* warning.[111] It is also important to note that even for *Miranda* warning there are exceptions like public safety exception. [112] This means that, if public threat could possibly be removed by the suspect making a statement, it can act as an exception to *Miranda* rule.

Regarding *Miranda* right to counsel, the US Supreme Court in *Davis* v. *US,*[113] held that suspect must do so "unambiguously". It was held that if an accused makes a statement concerning the right to counsel "that is ambiguous or equivocal or

108. 530 U.S. 428 (2000).
109. Judge Bernice B. Donald , "Probing the Mind: Neuroscience, The Rules of Evidence, and The Constitution," (Paper Presented at 57th UIA Congress, Union Internationale Des Advocates, International Association of Lawyers, Macau/China, October 31- November 4, 2013),pp.1-20 at pp. 5,6, available at http://www.antoniocasella.eu/dnlaw/DONALD_2013.pdf (accessed on 18/08/017).
110. *Martinez* v. *Ben Chavez*, 270 F.3d 852 (9th Cir. 2001). J. Kennedy stated that there are exceptions to *Miranda* warning. Identification of these exclusions has to be determined at trial. Justice Souter and Justice Thomas stated that right against self-incrimination is a trial right and J. Kennedy and J.Ginsburg disagreed.
111 .However Court opened the possibility of violation of substantive due process in certain circumstances and remanded the case to the lower court.
112. *New York* v. *Quarles*, 467 U.S.649 (1984), the court ruled in this case that, the need to have the suspect talk took precedence over the requirement that the defendant be read his rights. The court ruled that the material factor in applying this "public safety exception" is whether a public threat could possibly be removed by the suspect making a statement. In this case the officer asked the question only to ensure his safety and the public safety. See also James. R. Acker and JoAnne M. Malatesta, *Introduction to Law and Criminal Justice*, Jones and Barlett Learning, USA, (2014), pp.412-416.
113. 512 U.S 452, 459 (1994).

makes no statement", the police is not required to end the interrogation or ask questions to clarify whether the accused wants to invoke his *Miranda* rights. In 2010, in *Berghuis* v. *Thompkins*,[114] in 5-4 majority court held that silence alone is not sufficient; one has to say that he wants to remain silent. This means that this decision "has turned the tide holding that the right to silence has to be specifically exercised with the accused informing the police that he is exercising his right." [115] Thus it may be stated that, though right to silence is of wider ambit in US law, the recent trend of judiciary is to carve out limitations to this right.

Regarding the type of evidence which could be protected under V Amendment, it could be seen US judiciary has adopted a threefold test to determine whether a piece of evidence falls within the ambit of Fifth Amendment. The tests are, whether there is compulsion, whether the evidence gathered is incriminating and whether the evidence is testimonial in nature.[116]

In *Schmerber* v. *California*,[117] US Supreme Court created distinction between testimonial/ communicative and real /physical evidence. It is not breach of Fifth Amendment to extract physical evidence like blood etc., from the suspect without consent. This approach seems to be similar to the approach taken by Strasbourg Court[118] in *Saunders* v. *UK* [119] and *Jalloh v. Germany.*[120] But in *Schmerber*, Justice Brennan created a general exception to the Polygraph testing. He based his argument on the fact that determination of guilt based on these physiological responses would go against the spirit of Fifth Amendment. But this exception became difficult to be conceptualized by legal scholars.[121]Some scholars have even argued that it is a non-binding dicta.[122]

114. [2010] 130 S. Ct. 2250, 2260 (U.S.).
115. Etiketler, "Accused Opt for Silence, No Inferences: US Supreme Court," June 2010, available at https://pdflawyer.blogspot.in/2010/06/accused-to-opt-for-silence-no.html (accessed on 01/09/2017).
116. Petar Lozev, *supra* n. 69.
117. 384 U.S. 757 (1966).
118. Petar Lozev, *supra* n. 69.
119. *Saunders, supra* n. 60.
120. *Jalloh, supra* n. 67.
121. Petar Lozev, *supra* n. 69 at p.147.
122. Benjamin Holley, "It's All In Your Head: Neuro Technological Lie Detection and the Fourth and Fifth Amendments," Vol. 28 (1), Developments in Mental Health, January 2009, pp.1-76 at p.19,

Regarding Narco Analysis, US Supreme Court had held that individuals will is overborne during sodium amytal interview and hence statements made are coerced and involuntary.[123] Hence it is also important to analyze whether the statement made under Narco Analysis is violative of right against self-incrimination.[124] Scholarly articles also raise this issue.[125] They state that this method compels him to disclose his thoughts. But the proponents of the tests say that this is not an absolute right and is subjected to waiver and also by choice to testify on his behalf.[126]

At the same time some scholars like Allen and Mace have argued that testimony should be understood as result of cognition that allow holding a proposition true or untrue. Thus, the acquisition, storage, retrieval and use of knowledge which when used by the state would be considered as protected testimony.[127] If this argument is taken, compulsory administration of most of the Forensic Psychological Tests and the results obtained there from would amount to testimony.[128] However this view was also criticized by many scholars. For instance, Keil Brennan in his scholarly work "In Defense of Mind Reading Device," has

available at https://papers.ssrn.com/sol3/papers.cfm?abstract_id=1765985 (accessed on 20/09/2017).

123. Helen Silving, "Testing of the Unconscious in Criminal Cases," Vol. 69 (4), Harvard Law Review, February 1956, pp. 683-705 at p .686.

124. Scholarly opinion also raise criticism that the test affects right to defence of the accused as he is reduced to an object and no longer participant in the criminal process and also that there is violation of due process rights. They opine that if test results are admitted, then failure to submit to the test will be interpreted as admission of guilt. Thus it would violate presumption of innocence whereby the accused would be compelled to prove his innocence by subjecting himself to the test to prevent drawal of adverse inference against him. For detailed discussion, see, Michael A. Simon, "Shall We Ask the Lie Detector?," Science, Technology and Human Values, Vol. 8(3), Summer 1983, pp. 3-13, at pp.8-10.

125. *ibid.* See also J. P. Gagnieur, "The Judicial Use of Psycho-Narcosis in France," Vol.39, Journal of Criminal Law and Criminology, 1948-1949, pp. 663-666 at p.665, available at https://pdfs.semanticscholar.org/ee22/6942f0f9d925f7a84d7bcb078ed30d9b0b88.pdf (accessed on 01/09/2017). For a judicial view supporting the admissibility of such tests, see *Boeche* v. *State*, 37 N.W.2d 593, 597 (I949), See also, *People* v. *Kenny*, 167 Misc. 51, (Queens Co. Ct. 1938), as cited in S. Perry Keziah, "Admissibility of Fact of Submission to Lie Detector Test," Vol.4, Duke Bar Journal, 1954, pp.49-51 at p.51.There are also scholarly articles which state that Polygraph Tests do not violate right against self-incrimination. See, Fred E. Inbau, "Scientific Evidence in Criminal Cases--Methods of Detecting Deception, II," Vol. 24, Journal of Criminal Law and Criminology, 1933-1934, pp.1140-1158 at p.1157, available at http://scholarlycommons. law.northwestern. edu/cgi/ viewcontent. cgi?article =2451&context=jclc ( accessed on 01/09/2017).

126. Kiel Brennan-Marquez, "A Modest Defense of Mind Reading," Vol.15, Yale Journal of Law and Technology, 2013, pp. 214-272 at p.271.

127. Ronald J. Allen and M. Kristin Mace**,** *supra* n. 21.

128. This view was found support in *Selvi*, *supra* n. 10.

vehemently argued that cognition based view of testimony is unsuitable in the era of science and technology. He had suggested that it is communication based view of testimony which is apt in the scientific era.[129] Thus regarding interpretation of testimony, scholars adopt different views.

#### *4.5.2.3 Position in Canada*

The right against self-incrimination is not expressly provided as a right in Canadian Constitution, but is impliedly guaranteed by various provisions to it.[130] This right is articulated and expanded by the judiciary.[131] This right is available to the accused in both pretrial[132] and trial stages.[133] The right to silence implies choice

129. There are also other scholars who hold the same view. For instance, Dominique J. Church, "Neuroscience in The Courtroom: An International Concern," Vol. 53, William and Mary Law Review, 2012, pp. 1825- 1854 at p.1851, states that whether a test violates right against self-incrimination depends on the understanding of what is communication. He states that the choice and also the intent to communicate are neurological decisions. This would be completely eradicated if a person is coerced to subject himself to neurological assessment like BEOS, Brain Fingerprinting Tests, essentially rendering those tests as equivalent to a compelled testimony. Wolpe, P. R., *et.al*., "Emerging Neuro Technologies for Lie-Detection: Promises and Perils," Vol.5, American Journal of Bioethics, March-April 2005, pp.39-49 at p.39, states that "without mental intent to communicate there can be no communicative behavior,". This aspect is analyzed in detail in later part of this chapter and in next chapter.

130. Sections 7, 10(b), 11(c) and 13. Section 11(d) of Canadian Charter explicitly guarantees presumption of innocence, placing burden on prosecution to prove the case beyond reasonable doubt. This implies that accused cannot be compelled to assist the prosecution in proving the case against him by providing incriminating evidence at the investigation stage or trial stage. See also *R.* v. *Oakes*, [1986] 1 S.C.R.103.

131. See *R.* v. *Herbert*, [1990] 2 S.C.R. 151. In that case, the suspect had insisted that he did not wish to speak with police. In spite of his assertion, the police placed undercover police officer in his cell and obtained an incriminating statement from him. The court held that a person whose freedom is restricted must be given choice whether to speak to the authorities or not. The Supreme Court opined that, to permit the authorities to do indirectly through trickery what the Charter does not permit them to do would be contrary to the purpose of the Charter. Thus Supreme Court justified right of a suspect to remain silent during pre trial stage. But the court itself set out certain limitations to per trial right to silence. Firstly, the right is available only to a person who is detained by the police. The right does not prohibit questioning by police in the absence of lawyer even after accused exercise right to access to lawyer, provided right to silence is not violated. The right to do not prohibit obtaining voluntary information by persons other than police or even by police by undercover action, if police do not actively set out to intentionally elicit incriminatory statement from the suspect.

132. Legal position on pre-trial right to silence is mainly articulated in *R.* v. *Herbert*, [1990] 2 S.C.R. 151.

133 . The court clarified the position of right to silence during trial stage in *R.* v. *Noble*, [1997] 1 S.C.R.874. (Can SC). In that case, it was held that use of accused's silence in order to establish his guilt is impermissible even in the case of overwhelming evidence. Justice Sopinka speaking for the majority stated that for the burden of proof to remain with the crown, the silence of the accused should not be used against him for the proof of guilt. The court further held that, if the crown has proved the case beyond reasonable doubt, the silence of the accused may be referred to as evidence in the absence of explanation, which could raise reasonable doubt. In that event also accused need not testify and if he does not, the crowns case would prevail and the accused

between to speak or not to speak.[134] The right also means that no adverse inference could be drawn from the silence of the accused during trial.[135] But some exceptions are also recognized.[136] Thus, right against self-incrimination in Canada is a limited right and judicial skepticism towards Forensic Psychological Tests [137]are also not based on this ground.

#### 4.5.2.4 *Position in Australia*

When position in Australia is analyzed, it could be found that there is no Bill of Rights guaranteeing right against self-incrimination and the same is guaranteed by human rights instruments like Human Rights Act, 2004, Charter of Human Rights and Responsibilities Act, 2006. [138] This right, though guaranteed in Australian jurisdictions[139] is not strongly protected and some limitations are provided both by case laws[140] and legislation.[141] It is also important to note that judicial skepticism in

would be convicted. The Court held that it is only in this sense the crown need respond. If the silence of the accused is taken into account only after arriving at finding of guilt of the accused, it does not offend right to silence or presumption of innocence.

134. Eileen Skinnider and Frances Gordon, "The Right to Silence – International Norms and Domestic Realities," (Paper Presented at The International Centre for Criminal Law Reform and Criminal Justice Policy, Beijing, 16-25 October, 2001) at p.10, available at http://icclr.law.ubc.ca/sites/icclr.law.ubc.ca/files/publications/pdfs/Paper1_0.PDF (accessed on 01/09/2017).

135 . In *R. v. Chambers*, [1990] 2 S.C.R. 1293, the Court said that it would be a "snare and a delusion" to offer a suspect the right of silence during investigation only to later turn his silence against him at trial.

136. There may be particular circumstances in rare cases when such evidence may be relevant and admissible. *Supra* n. 134 at p.13.

137 . It is to be noted that In *R.* v. *Wong*, [1990] 3 S.C.R. 36, *R.* v. *Phillion*, [1978] 1 S.C.R. 18, and in *R.* v. *Beland*, [1987] 2 S.C.R 398. The Court held Polygraph Test as inadmissible, not on the ground of right to silence but on evidentiary grounds.

138. Human Rights Act, 2004 s. 22(2)(i) ; Charter of Human Rights and Responsibilities Act, 2006 s.25(2) (k). See also Anthony Gray, "The Right to Silence: Using American and European Law to Protect Fundamental Right," Vol.16 (4), New Criminal Law Review, (2013), pp.527-567 at p.557, available at https://eprints.usq.edu.au/24108/7/Gray_NCLR_v16n4_PV.pdf (accessed on 01/09/2017).

139. Regarding pre-trial right to silence, there is no law in Australian jurisdiction which makes it an offence to remain silent when questioned by police. Both prosecutor and trial judge are prohibited from commenting on pre-trial right to silence at trial stage.

140. There are two major decisions of Australian High Court dealing with right to silence. The first case is *Petty & Maiden*, (1991) 173 CLR 95, wherein the court strongly upheld the suspect's right to silence and that no adverse inference could be drawn from the silence at pre trial stage. But in *Weissensteiner* v. *The Queen*, (1993) 178 CLR 217 (1993) (Australian High Court), the court appeared to have recognized some limits on the right. The court distinguished *Petty* on the ground that, the court was dealing with silence at trial than silence at pre trial. The majority held that inference of guilt could not be drawn from the silence of the accused. But if that inference could be drawn from other available evidence, then it could safely be drawn if accused failed to offer an explanation. Thus some limits may be drawn on right to silence, but it could not be lightly disregarded. The decision only implies that court do not desire to exclude evidence which can rationally support finding of guilt.

Australian Jurisdictions towards Forensic psychological Tests is not based on the ground of right to silence.[142]

### *4.5.3 Position in India*

Article 20(3) of the Constitution, The Criminal Procedure Code, 1973[143] and Indian Evidence Act, 1872,[144]provides for right against self-crimination and this right is available not only during trial but even during investigation.[145] The right is of wider amplitude and is a non derogable right.

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141. It is also found that legislation may override the right. Some legislation passed by parliament has also resulted in limiting the right. For instance, The Australian Security Intelligence Organization Act, 1979, punishes failure to appear for questioning once direction is issued. It also provides that it is not a defense to state that information withheld would incriminate him. But the information or thing obtained could not be used as evidence against him. Similarly Crimes Act, 1914 also contains some provisions which limits right against self-incrimination. However, much of the enactments provide that at trial stage, the accused generally need not answer questions. But the recent trend is to limit the scope of the right in trial stage. The Evidence Amendment (Evidence of Silence) Act, 2013 allow courts in the case of serious indictable offences to make inference against a person in hearing proceedings, in certain circumstances. The circumstance is that the accused remain silent about something at the investigatory stage and then leads it at trial, in those circumstances where they might reasonably have been expected to mention it to authorities at the investigatory stage, adverse inference may be drawn. But some safeguards are also provided like cautioning the individual and also that he is given an opportunity to obtain legal advice about the ramifications of failure to mention that fact.

142 This aspect is analysed in detail in forthcoming chapters.

143 Even prior to the adoption of the Constitution, the right against self-incrimination was recognized in s.342 of The Criminal Procedure Code 1898.The relevant statutory provisions which directly or indirectly deals with the protection against self-incrimination are Ss. 327,328, 330, 331, 347, 348 of Indian Penal Code, 1860, Ss. 162, 163, 164, 172, 281, 306, 307, 308, 313, 315, 317 of the Code of Criminal Procedure, 1973 and the Ss. 24, 25, 26, 27, 30, 114 illust(g),(h), 132, 133, 147, 148, 165 of The Indian Evidence Act, 1872, S.32 of the Prevention of Terrorist Activities Act, 2002 and Ss. 5and 6 of Indian Oaths Act, 1873. The Code of Criminal Procedure (Amendment) Act, 2005, has amended, as well as inserted, Ss. 53, 53(A), 164(A), 291(A), 311(A) in view of socio, legal and technical development. When we analyze the scheme of Criminal Procedure Code 1973, it can be seen that most of the provisions of Chapter XII of the Code provide for protection against self-incrimination from the investigation stage. Under Section 161 (2) of the Code of Criminal Procedure, it is provided that when a person is being examined by a police officer, he is not bound to answer such questions which would have a tendency to expose him to criminal charge, penalty or forfeiture. The Criminal Procedure Code, 1973 recognizes not only right to silence but also provides rule against adverse inferences being drawn from the fact of his silence. In the trial stage, under s.313 (3), the court may put any questions to the accused, so that he may explain any circumstances which may appear as evidence against him. However a limitation is placed on the court with respect to exercising this power by the statute. It is provided that the accused shall not render himself liable to punishment by refusing to answer any question or for giving false answers to them. As per the scheme of the Code, though accused could be a competent witness for defense, but, his failure to give evidence shall not be made subject to any comment by any parties or the court or give rise to any presumption against himself or any person charged together with him at the same trial. Thus right against self-incrimination and right to silence are guaranteed both during investigation and trial as per the scheme of Code of Criminal Procedure, 1973.

144 Similar protection is available to the accused under Indian Evidence Act, 1872 also wherein a statement made to police officer is made inadmissible in evidence. See Ss. 24-27.

145 *Nandini Satpathy* v. *P.L. Dani*, A.I.R.1975 S.C.1025.

However, in the light of changes made in other countries regarding this right, Law Commission in its 180th Report had considered whether the right against self-incrimination shall be limited or not and the Commission had come to the conclusion that there is no need to limit that right.[146] However Malimath Committee[147] which submitted its report after this, has taken a different stand and opined that drawing of adverse inference against the accused on his silence or refusing to answer will not offend the Fundamental Right under Article 20(3) as it does not involve any testimonial compulsion. Thus the Committee recommended for amending the Code of Criminal Procedure, 1973, so as to provide for drawing of adverse inference from the silence of the accused.

At this juncture, it is also important to note that, there are also provisions which casts obligation on the part of citizens to cooperate with investigative efforts of the police.[148] For instance as per Section 39 of The Code of Criminal Procedure 1973, a duty is placed on citizens to inform the nearest magistrate or police officer, if they are aware of the commission of or of the intention of any other person to commit crimes which are enumerated in the section.

Similarly, though right against self-incrimination is non derogable, it is not unqualified in all circumstances. Article 20(3) does not prohibit questioning of the accused during investigation or trial. Similarly during trial he may be asked whether he pleads guilty and in such circumstance he may confess and plead guilty to the charge. If the accused is willing during the investigation to make confession, it can be done under Section 164 of the Code of Criminal Procedure, 1973, before the magistrate. A voluntary statement made by the accused which may lead to the

146. See, Justice M. Jagannadha Rao, *180th Law Commission Report on Article 20(3) of the Constitution of India*, Law Commission of India, 2002, p.41.

147 Dr. Justice V.S. Malimath, *Committee on Reforms of Criminal Justice Systems*, Government of India, Ministry of Home affairs, 2003, p.52. The important question considered by the Committee was whether statutory provisions which permit the court to draw adverse inference from the silence of the accused during investigation or trial violate Article 20(3) of the Constitution of India.

148. See also Ss. 37 and 38 of The Code of Criminal Procedure, 1973.The Code also empowers the officer in charge of the police station to investigate cognizable offences even without the order from the magistrate under Section 156(1). The police officer investigating the case is empowered under Section 161(1) to orally examine any person who is supposed to be acquainted with the facts and circumstances of the case. Such person is bound to answer truthfully, except those questions which have a tendency to incriminate him.

discovery of any incriminating fact is admissible in evidence under Section 27 Indian Evidence Act, 1872. Similarly, if court had tendered pardon to the approver who may be an abettor, on condition that he makes complete and full disclosure of all facts including his involvement in the crime, such a person is bound by that condition.[149] If such a person gives false evidence or willfully conceals any essential fact, he will be deprived of the privilege of pardon. He also will be tried for the offence he has committed and also will be liable for giving false evidence.[150]Thus right against self-incrimination is not an unqualified right and its object is only to protect the accused from being compelled to give self-incriminatory evidence and not to curb investigative efforts by the police.

#### *4.5.3.1 Constitutional Protection of Right against Self Incrimination*

Article 20(3) of the Constitution state that "No person accused of an offence shall be compelled to be a witness against himself." This right contains the following components[151] which must coexist[152].

(i) It is a right available to a person accused of an offence.[153]

149. The Code of Criminal Procedure 1973, Ss. 306 and 307.

150. As per s. 132 of Indian Evidence Act, 1872, a witness cannot refuse to answer questions during trial on the ground that answers would incriminate him. However the Section has a proviso which provides that the content of those answers cannot expose him to arrest or prosecution except for the prosecution for giving false evidence.

151 . *M.P. Sharma* v. *Satish Chandra,* A.I.R. 1954 S.C 300.

152 . *ibid.*

153 . This aspect is already considered in Chapter 1 Introduction. In *Nandini Satpathy supra* n. 145, the court introduced the concept of potential accused and held that from the very moment a question of an incriminating nature is put to a person, he can avail the protection of Article 20 (3) of the Constitution. In *Selvi* decision, the apex court had elaborately considered this issue and stated that the protection under Art. 20(3) is available only to an accused person. The person accused must have stood in the character of the accused person when he made the statement. It is not enough that he should become an accused at any time after the statement is made. Formal accusation is necessary to enable protection under Art. 20(3). See also, M.P Jain, *Indian Constitutional Law*, Lexis Nexis, Haryana, India, (7th edn., 2014), p.1107.
It is also important to note, recent trend of judiciary is to delineate this right against self-incrimination. For instance, in *Balasaheb v. State of Maharashtra*, (2011) 1 S.C.C. 364, the Supreme Court had held that the "right is not available to a person to avoid answering questions in a matter where he has not been charged of an offence." The court held that for invoking protection under Art. 20(3) a formal accusation against the person claiming protection must exist. In that case, the appellant was accused in a complaint case and he was only a witness in police case. The court held that in the case in which he was only a witness, a blanket protection cannot be given to him under the provision. Thus the apex court has delineated the limitations of this provision. For details see, "Limitations to Law Against Self

(ii) It is a protection against compulsion to be a witness.

(iii) It is protection against such compulsion resulting in his giving evidence against himself.

The first component specifies who can invoke protection under Article 20(3) and the last two components deal with the scope and ambit of this right. As per the judicial pronouncements, right from *M.P. Sharma,* [154] the right against self-incrimination is available from investigation stage.[155] This right extends to all the stages in which any information, statement or material is collected which would certainly extend to investigative stage.

### *4.5.3.2 Meaning of Compulsion*

The term compulsion as per Black Law dictionary, means the state of being compelled.[156] Compel means to cause or bring about by force, threat or pressure. This means that accused must be compelled to make the statement. There must be use of force to make the statement.

In *Kathi kalu*[157] case, the Supreme Court had held that if the police officer investigating the crime merely asks the accused to do something, it will not amount to compulsion. It was also held that merely because the person was in police custody, it will not make an inference that he was compelled to make the statement. If by

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Incrimination: Supreme Court delineates," January 25, 2011, available at http://legalperspe ctivesblogspot.in/sea rch/label/criminal%2 0Law (accessed on 27/09/2014).
There are also some scholarly articles which states that meaning of the term accused in s. 27 of Indian Evidence Act and Art. 20(3) are one and the same. s. 27 include only a person against whom formal accusation has been made. s. 27 do not include witnesses and suspects who "although may or may not expose themselves to a 'criminal charge' are certainly not formally accused when the statement is made in police custody. Thus, only a person against whom formal accusation has been made has the Fundamental right against self-incrimination and others have only statutory right against self-incrimination. The analysis of latest case laws and scholarly opinions reveal that the right under Article 20(3) is available only to a person accused of an offence against whom formal accusation had been made. See also, Ashish Goel, "Indian Supreme Court in *Smt. Selvi* v. *State of Karnataka*: Is a Confusing Judiciary Worse Than a Confusing Legislation?," Journal of Law and Politics in Africa, Asia and Latin America, (2011), available at https://pap ers.ssrn.com/sol3 /papers.cfm?abstract _id=2063920 (accessed on 13/12/2017).For the purpose of our study the meaning of accused is same as that provided in *Nandini Satpathy*.

154 *M.P. Sharma, supra* n. 151.

155 . *State of Bombay* v. *Kathikalu Oghad,* A.I.R 1961 S.C. 1817 and *Selvi* v. *State of Karnataka,* 2010 (7) S.C.C. 263.

156. This means forcible Inducement to the Commission of an act. See, "What is Compulsion?," available at http://thelawdictionary.org/compulsion/ ( accessed on 30/08/2017).

157 . *Kathikalu, supra* n. 155.

mere questioning of the accused, he makes a voluntary statement, it will not become incriminatory and compulsion. Though, Article 20(3) protects against compulsion to be a witness against himself, left to himself, he may voluntarily waive his privilege, by entering into the witness box or by giving evidence voluntarily on his request. In fact request implies no compulsion. Therefore the evidence given on request is admissible in evidence against the person giving it.[158]

At this juncture, it is important to note that, some High Courts while upholding the constitutional validity of Narco Analysis had considered the meaning of compulsion under Article 20(3). For instance, the Gujarat High Court[159] held that compulsion means duress, which may involve serious physical harm or threat. On that analysis, the court held that mild pain which arise from the administration of the injection during Narco Analysis Test would not reach to the level of hurt as to constitute compulsion. It could be seen that, similar narrow view was taken by Madras High Court also.[160] The court held that compulsion means using physical force or third degree methods of interrogation. Court also held that though the subject may be forced to undergo Narco Analysis in the first place, the statements made by him during the tests are voluntary. In most of these cases court had held that the meaning of the term compulsion given by *Nandini Satpathy* [161] is not applicable with respect to Forensic Psychological Tests. Because *Nandini* dictum is applicable with respect to use of torture by police and not with respect to conducting scientific tests in Forensic Science Laboratories.'[162]

None of the Forensic Science Laboratories' conduct the tests without the consent of the subject.[163] Moreover after *Selvi,*[164] the tests could be conducted only with consent of the subject and after getting court order in this regard. It has also come to the knowledge of the researcher, though investigating officer may decide to go for the test, usually higher ups also would come to know about it. So even within

158. *ibid.*
159. *Santokben Sharmanbhai Jadeja* v. *State of Gujarat,* 2008 Cri.L.J. 68 (Guj.).
160. *Dinesh Dalmia* v. *State,* 2006 Cri.L.J.2401 (Mad.).
161. *supra* n. 145.
162. *Rojo George* v. *State of Kerala*, (2006) 2 K.L.T. 197.
163 . As per the information obtained from Forensic Science Laboratories, by the researcher by filing application under Right To Information Act, 2005.
164. *supra* n.10.

the department there is supervision as to whether the test is required. So it may be stated that investigative use of the tests would not amount to compulsion within the meaning of Article 20(3).

#### *4.5.3.3 What is Self-Incrimination?*

In *Kathikalu*[165] the apex court held that self-incrimination means conveying information based on the personal knowledge of the giver. In *Selvi*[166] it was held that oral and documentary evidence conveying personal knowledge which is likely to lead to incrimination by itself or furnishes a link in the chain of evidence come within the prohibition of Article 20(3). But Article 20(3) does not prohibit the collection of material evidence such as bodily substances and other physical objects and the statements used for comparison with facts already known to the investigators.

In *Selvi*[167] it was held that if a person in custody is compelled to reveal information/ statement which helps in investigative efforts, this information could be proved to be incriminatory in the following ways:

(i) Direct Use: Statements made in custody could be directly relied upon by the prosecution in order to strengthen their case. If it is proved that such statements are made under compulsion, they will be excluded from evidence.

(ii) Derivative use: When the information revealed during questioning leads to the discovery of independent materials and furnishes a link in the chain of evidence gathered by investigators, it can become incriminatory.[168] The issue as to whether derivative use of the information obtained by involuntary administration of the test results falls within the evidentiary barriers is analysed in Chapter VII. It is also important to note that derivative use of the results of the test conducted voluntarily is permitted by the Supreme Court in *Selvi*.

(iii) Transactional use: When the information obtained could be proved to be helpful for investigation and prosecution in cases other than one being

165. *Kathikalu, supra* n. 155.
166. *supra* n.10.
167. *ibid.*
168. The court had permitted derivative use of test results if it is admitted voluntarily. The issue as to admissibility of derivative evidence is considered in the next chapter.

investigated, it may turn to be incriminatory. In *Selvi*, court had permitted transactional use of information obtained from voluntarily administered tests.

(iv) The information obtained may be compared with materials which are already in the possession of investigators.

Now it may be analysed how far in the above situations the information obtained become self-incriminatory.

#### *4.5.3.3.1. Direct Use of the Evidence obtained from Forensic Psychological Tests*

To determine what constitute incriminatory, court in *Selvi* referred to *Nandini Satpathy*, It was observed that Article 20(3) strikes at confessions and self-incrimination but leaves untouched other relevant facts. The confession constitutes those answers which in themselves support a conviction. This impliedly means that only if the administration of the test, results in answers, which would constitute confession or which would furnish a link in the chain of evidence, it would become incriminatory under Article 20(3).[169]

In *Kathikalu*, the Court had authoritatively observed on the bounds between constitutional proscription and testimonial permission. Court had stated that to come within the prohibition of constitutional provision, the testimony by the accused should be of such a character that, by itself it should have a tendency of incriminating the accused. It thus means that it should be a statement which makes the case against the accused at least probable considered by itself. Court had observed that Article 20(3) would be invoked only against statements which "had a material bearing on the criminality of the maker of the statement."[170]

When the Forensic Psychological Tests are analyzed, it could be seen that the administration of the tests only provide evidence which would give a lead to the investigation and those results by itself will not prove the guilt or innocence of the accused. Hence based on this interpretation of decisions in *Kathikalu* and *Nandini Satpathy*, it may be stated that the administration of the tests and the results ensuing there from will not amount to incrimination within the meaning of Article 20(3)

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169. *supra* n. 10.
170. Kathikalu, *supra* n.155.

All the tests other than Narco Analysis will not lead to any statement which may be considered as confession or statements which may provide a link in the chain of evidence needed to prosecute the person who is subjected to these tests. In Polygraph, though 'Yes' or 'No' answers are provided, those answers are in no way considered as important in the analysis of the results. In the case of Layered Voice Analysis also, though the person makes statement, the content of the statement is not at all given importance and the psychological element involved in the particular strata of the voice alone is important, which is measured based on frequency of the voice. In the case of BEOS Test, the subject do not make any statement, he sits with his eyes closed, when the probes are read to him. The experiential knowledge of the person with respect to that probe is measured by measuring the brain activity. Thus the administration of the test could be equated with search or inspection of the person, who gives no assistance to the investigating officers. In all these tests, what is involved is only submission of the person in collection of evidence. Hence it may be stated that the administration of the tests and their results could not be considered as self-incriminatory. Regarding Narco Analysis, it may be stated that whether the test is self-incriminatory or not depends on facts and circumstances of each case.

Another situation in which direct use of information obtained may be made, is that when a co accused is given immunity from prosecution in return for cooperating with investigating officers or if a person who had been compulsorily undergone the test gives incriminatory statements against his co accused whether it would be hit by Article 20(3). This issue was considered by Asish Geol in his article.[171] He analyzed the legal position in a situation in which, the accused is compelled to reveal information based on his personal knowledge though not self-incriminatory but has a tendency to expose any other person to a criminal charge.[172] He stated that the reading of Section 161(2) of the Code of Criminal Procedure, 1973 and Article 20(3) would clearly reveal that the prohibitions under both the provisions are only against involuntary self-incriminatory statements and not against involuntary incrimination of any other person. This means that only forceful self-incrimination is prohibited and not forceful incrimination *per se*.[173]

171 . Ashish Goel, *supra* n. 153.
172. *ibid*.
173 . *ibid.*

At this juncture, it is important to note that, as per Sections 161 (1) and (2) of The Code of Criminal Procedure, an obligation is cast on a person acquainted with facts and circumstances of the case to answer truthfully all questions put forward to him. Section 179 of Indian Penal Code, imposes criminal liability on a person who refuses to answer any questions demanded by public servant with respect to the subject in which he exercises legal powers. The word 'demanded ' used in this section[174] reveals that public servant can go the extent of compelling an individual to state relevant information that is known to him.[175] A joint reading of Section 179 Indian Penal Code, Article 20(3) and Section 161 (2) Code of Criminal Procedure would give the conclusion that "a public servant can compel any person to state relevant information regarding a particular case which may expose all persons of criminal worthiness save only his accomplice."[176] In this perspective, it may be stated that the apex court in *Selvi* had failed to observe that compulsion in the form of involuntary administration of the tests is not always against Article 20(3) and Section 161 (2) Code of Criminal Procedure 1973.[177] Thus involuntary administration of the tests could be lawful if administered to extract information from persons who are supposed to be acquainted with facts and circumstances of the case but do not expose themselves to criminal charge against them or accomplices by such revelation.[178] This means that even after *Selvi*, room has been left for involuntary administration of the tests lawfully. This means that in certain circumstances direct use of the evidence obtained from involuntary administration of Forensic Psychological Tests need not be self-incriminatory.

#### *4.5.3.3.2 Whether Transactional Use of the Test Results Amount to Self Incrimination?*

When the information which is revealed could be proved to be helpful for investigation and prosecution in cases other than one being investigated, it is transactional use. As per *Selvi* decision, transactional use of information obtained from the test is permitted. In several decisions, court has reiterated that the protection

174 s.179 of Indian Penal Code is also within the ambit of Art 20(3). see, *ibid*.
175. *ibid*. The author states that the use of the word demanded instead of request suggest such a conclusion.
176. *ibid.*
177. *ibid.*
178. *ibid.*

of right against self-incrimination is available only if there is formal accusation against the person with respect to offence in which investigation is being made. No blanket protection is available to the person. In *Balasaheb v. State of Maharashtra,*[179] the Supreme Court had held that the "right is not available to a person to avoid answering questions in a matter where he has not been charged of an offence.[180] The court held that for invoking protection under Art. 20(3), a formal accusation against the person claiming protection must exist. In that case, the appellant was accused in complaint case and he was only a witness in police case. The court held that in the case in which he was only a witness, a blanket protection cannot be given to him under the provision. This means that evidence given by a person in respect to an offence in which there is no formal accusation against him may be used in any other case. Thus only with respect to the offence in which he is charged and investigation is taking place, accused may exercise right against self-incrimination. So if any self-incriminatory information is obtained with respect to a different offence not under investigation, he cannot claim protection as per the judicial pronouncements. This means that transactional use of the information obtained from the tests can be said to be legal.

#### *4.5.3.3.3 Forgone Conclusion Theory and Forensic Psychological Tests*

In both *Kathikalu* and *Selvi*, the apex court held that, even if the test results are testimonial in nature, if it is used for the purpose of identification or corroboration with facts already known to the investigators, then it is not barred under Article 20(3).[181] This implies that "if the testimony of the defendant, regardless of whether it is communicative or physical, adds little to the information gathered by Government, then it is considered as foregone conclusion.[182] Because in this case, accused's cooperation did nothing to aid the Government's case against him.

This doctrine was established in *Fisher v. US,*[183] wherein accountants of the accused were summoned to produce documents relating to an investigation of

179. *Balasaheb* v. *State of Maharashtra,* (2011) 1 S.C.C.263, 364.
180. *ibid.*
181 . *Supra* n. 10 at p.339.
182. Goldman, "Biometric Passwords and the Privilege Against Self-Incrimination," Vol.33, Cardozo Arts and Entertainment Law Journal, 2014, pp.211-236 at p.224.
183. 425 U.S. 391 (1976).

possible criminal or civil liability under federal tax laws. The accused argued that the subpoena directed to the accountants would violate his privilege against self-incrimination. But court held that privilege is not violated because accused is not compelled to produce incriminating evidence, but only to hand over information which is already in existence. The court also held that, however incriminating the documents might be, the act of producing them do not in itself would raise to the level of testimony under Fifth Amendment. In this case, Fisher's act was regarded as non-communicative because it did not provide Government with any information which it did not already know.

In *US v. Hubbell*[184], which is also an act of production case, court applied foregone conclusion principle. Hubbell was required to produce many documents which were of incriminatory nature. Here also court applied foregone conclusion theory and held that the act of producing the documents in response to subpoena have a compelled testimonial aspect. Here court held that the act of production and the suspects compelled testimony as to whether all demanded documents have been produced, "certainly communicate information about the existence, custody and authenticity of the documents."[185] In *Fisher,* the state already knew that the documents were in the possession of the attorneys of the tax payer and could independently confirm their existence and authenticity through the accountants who created them. But in *Hubbell,* the State could not show that they had any prior knowledge of either the existence or whereabouts of the documents produced by the defendant. Hence the act of production was considered as testimonial.

In *Re Boucher,*[186] with the help of the accused, the government agent examined an encrypted drive on a lap top and he found that it contained incriminating files. But later, the accused sought to invoke Fifth Amendment right by refusing subsequent requests to divulge pass words. The court by applying foregone conclusion theory held that providing access to unencrypted drive adds nothing to the sum total of the state's information about the existence and location of the files

184. 530 U.S. 27 (2000).
185. *ibid.*
186. In *Re Boucher*, United States District Court for the District of Vermont 2007 WL 4246473, (Nov. 29, 2009) available at https://www.eff.org/files/boucher.pdf (accessed on 05/04/2016).

containing incriminating information. The court also held that, "the act of producing an unencrypted version of the drive is not necessary to authenticate it. He already has admitted its possession and has provided the Government with access."[187]

When Indian cases are analyzed, it could be seen that, in *Selvi*, the apex court had also discussed about forgone conclusion theory.[188] But court held that, although in Polygraph and BEOS, the actual process involved may not amount to making an oral or written statement, the consequences are similar. In these cases, the examiner is deriving knowledge from the mind of the subject by making inference from the results of the test. The investigators could not have prior knowledge of these memories and thoughts either in actual or constructive sense unlike in the case of documents. Thus, the court stated that no analogy could be made between these tests and the production of documents.[189] Hence, the court concluded that forgone conclusion theory cannot be applied and the test results being testimonial in nature is violative of Article 20(3).

However, it may be stated that, in all these tests, the investigating officers are mainly concerned with the situations wherein they seek reliance on the test to detect deception or to verify the truth of previous testimonies. In the case of Polygraph, BEOS and Layered Voice Analysis, the results of the tests and also the process of administration of the test, do not reveal anything more than what was already known by the investigators. In Polygraph, the questions are framed by the forensic psychologist with the help of investigating officers and also based on the documents pertaining to the crime produced before him. In BEOS also, the probes are designed based on the versions of both the subject and also the investigating officer. In Layered Voice Analysis also, the questions are formulated with the help of investigating officers. Hence in all these cases, the results pertains only to those aspects which are already known to the investigating officers and its purpose is only in helping to give a proper direction to investigating officer. The results of the tests help to corroborate preexisting testimonies or prosecution theories.[190] Thus forgone conclusion theory is applicable in all the cases.

187. *ibid*.
188. Though the term "Forgone conclusion" is not actually used.
189. *supra* n. 10 at p.257.
190. *id*. at p.209.

But in Narco Analysis Test, revelations may sometimes reveal or uncover vital evidence.[191] However whether it reveals new evidence or not depends on the facts and circumstances of each case. When all the Forensic Psychological Tests are considered, it could be seen the results of the tests actually falls within the category of foregone conclusion theory and the results of the tests do not provide any new information than what was already known by the investigators. The tests only give a direction to the investigating officers for further investigation. Thus Foregone conclusion theory is applicable. Hence it may be stated that the results of the tests are not self-incriminatory. Thus investigative use of Forensic Psychological Tests cannot be considered as self-incriminatory.

#### *4.5.3.3.4 What Constitutes Testimonial Compulsion?*

This question was first considered in *M.P.Sharma's* case[192]. Court held that "to be a witness" include not merely giving oral evidence but also producing documents or making intelligible gestures as in the case of dumb witnesses or the like. This means that "to be a witness is nothing more than to "furnish evidence". Such evidence could be furnished through lips, production of a thing or a document or in other modes. Court also observed that every positive volitional act which furnishes evidence amount to testimony. The testimonial compulsion connotes coercion which procures the positive volitional evidentiary acts of the person as opposed to the negative attitude of silence or submission on his part. In the case of Forensic Psychological Tests like Polygraph, BEOS and Layered Voice Analysis, there is only submission on the part of the subject.

In *Kathi Kalu* [193], the court was considering the issue whether Section 27 and 73 [194] of The Indian Evidence Act, 1872 and Sections 5 and 6 of the Identification of Prisoners Act, 1920,[195] would amount to violation of Article 20(3).

191. *ibid.*
192. In that case the issue was whether the search warrants issued under s. 94 of The Code of Criminal Procedure, 1973, authorizing the investigating agencies to search and seize the documents of the company and its premises would amount to violation of Art. 20 (3).
193. *Kathikalu, supra* n. 155.
194. This provision empowers the court to obtain specimen handwriting, signature or finger impressions of an accused for the purpose of comparison.
195. These provisions empower the magistrate to obtain the photographs or measurements of the accused person.

In this case both majority and minority judges came to the same conclusion. But their reasoning's were different. Regarding the expression "to be a witness", the majority held that the ambit of the expression "to be a witness' was narrower than that of "furnishing evidence." Justice Sinha held that "to be a witness" may be equivalent to "furnishing evidence" in the sense of oral or written statements but not in the larger sense of giving thumb impression, foot prints etc. Constitution makers might not have contemplated such a meaning to the expression "furnishing evidence." They might have intended to protect the accused persons from the hazards of self-incrimination. But they would not have intended to put obstacles in the way of effective and efficient investigation to crime and to bring offenders to justice. Taking impressions of the body, specimen handwritings etc. are very much necessary to help the investigation of the crime. Moreover, it is equally important to arm law enforcement agents with power, to bring offenders to justice. It must also be assumed that Constitution makers were aware of Section 73 of Indian Evidence Act 1872 and Sections 5 and 6 of Identification of Prisoners Act 1920, when they enacted the constitution.

The giving of specimen handwriting, finger or thumb impression would not strictly amount to "to be a witness". "To be a witness" means imparting knowledge in respect of relevant facts, by means of oral or written statements by a person who has personal knowledge of the facts to be communicated to the court or to a person holding an inquiry or investigation. Court also held that the giving of personal testimony must depend on his volition. It was stated that for a testimony to be self-incriminatory within the meaning of Article 20(3), it should be of such character that by itself it should have a tendency to incriminate the accused though not of actually doing so. It should be a statement which makes the case against the accused, considered by itself. Thus as per the majority decision in *Kathi Kalu*, the expression " to be a witness" is confined to those oral or documentary evidences which could lead to incrimination by themselves, as opposed to those which is used for the purpose of identification or comparison of the facts already known to the investigators.

Minority opinion was that, confining the expression "to be a witness" to giving information based on personal knowledge of a person giving information by

oral or documentary evidence and of not including material evidence within it, is a narrow interpretation. The minority judges opined that to give such a limited meaning to the expression "to be a witness" is to allow compulsion to be used in procuring the production of large number of documents from the accused, which are of evidential value sometimes even more than any oral statement of the witness. As per the natural ordinary meaning, witness is associated with evidence which means "furnish evidence".

So the minority observed that, the accused can assist in proving the fact not only by imparting knowledge but by other means like producing documents which, though may not contain his own knowledge but would have a tendency to make probable the existence of a fact in issue or relevant fact. However the minority agreed with the majority's conclusion that, for the purpose of invoking Article 20(3), the evidence must be incriminatory by itself. This means that if the evidence is used only for the purpose of identification or comparison with information and materials that are already in the possession of investigators, it could be relied upon. Hence the minority held that, the fingerprints, handwritings etc. will be incriminatory only if on comparison of these, with other impressions, handwritings etc., and the identity is established. By themselves they do not incriminate the accused or tend to do so. That is why it should be held that by giving these impressions, handwritings etc. the accused does not furnish evidence against himself.

Same arguments may be applied with respect to Forensic Psychological Tests also. The physiological measures in the case of Polygraph, electrical activity in the case of BEOS Test and voice samples in the case of LVA do not by themselves are incriminatory and assist the investigating officers to establish guilt or innocence of the subject. They will become incriminatory only upon further analysis of the data. Even then, they could only provide a lead in the investigation. Only on further investigation, actual involvement of the person in the commission of the alleged offence could be determined. In the case of Narco Analysis Test, only after the test is conducted, it could be stated whether the statement is incriminatory or not. Thus by taking the dictum in *Kathikalu*, it may be stated that involuntary administration of Forensic Psychological Tests does not amount to testimonial compulsion.

Therefore, upon reading of the precedents with respect to right against self-incrimination, it may be stated that no testimonial compulsion is involved in the involuntary administration of Forensic Psychological Tests. As per *MP Sharma* dictum, testimonial compulsion connotes coercion which procures the positive volitional evidentiary acts of the person as opposed to the negative attitude of silence or submission on his part. In the case of Forensic Psychological Tests, there is only submission on the part of the subject.

The crucial test that had been laid down in *Kathi Kalu* is that, personal testimony means , imparting knowledge in respect of relevant facts , by means of oral or written statements by a person who has personal knowledge of the facts to be communicated to a court or to a person holding an enquiry or investigation.[196] When BEOS and Polygraph are considered, the difficulty which arises is that the majority opinion in *Kathi Kalu* is confined to oral and documentary evidence. The results from Polygraph or BEOS are not in the form of oral or written statements. They are inferences drawn from the measurement of physiological responses recorded during the performance of these tests. In *Selvi,* it was argued that the tests such as Polygraph and BEOS, do not involve positive volitional act on the part of the test subject and therefore their results should not be treated as testimony. However the, court opined that though these two tests do not involve positive volitional act, that does not lead to the conclusion that, the results of these tests should be taken as similar to physical evidence to be excluded from the protective scope of Article 20(3).The court held that, although in Polygraph and BEOS, the actual process involved, may not amount to making an oral or written statement, the consequences are similar. The court opined that, in these cases the examiner is deriving knowledge from the mind of the subject by making inference from the results of the test. The investigators could not have prior knowledge of these memories and thoughts either in actual or constructive sense unlike in the case of documents. Court also held that the knowledge obtained from the tests may help in the ongoing investigation or may lead to the discovery of fresh evidence which may be used to prosecute the test subject.

196. *Kathikalu, supra* n. 155.

Moreover court also held that the compulsory administration of these tests would impede the subject's right to choose between his right to remain silent and offering substantive information. The court stated that there is difference between ordinary interrogation and administration of Forensic Psychological Tests. It was further observed that in ordinary interrogation, the investigators ask one by one and the subject has a choice either to answer questions or to remain silent and hence his verbal responses may be regarded as voluntary. Court also stated that the subject is unable to exercise this choice in a continuous manner in the case of administration of these tests. Once initial consent is given, the subject has no conscious control over subsequent responses given during the tests.[197] Therefore the subject could not exercise an effective choice between remaining silent and imparting personal knowledge.

However, it may be stated that, though the contention may be true with respect to Narco Analysis Test, these contentions won't stand with respect to other tests. In the case of Polygraph, BEOS and LVA Tests, during the pre-test interview a rapport is created between the examiner and the subject. In that stage the questions to the examinee are given, so that, he should not be surprised during the actual test, which may result in eliciting of physiological responses which may not actually correspond to deception. In the case of BEOS Test also, same is the case. So the contention that the subject could not exercise his choice during the questioning in the case of these tests will not stand. Moreover, even if the tests are court ordered, the tests will not be conducted by the Forensic Science Laboratories, if the subject does not give consent to the tests. Hence the proposition stated in *Selvi* decision that the subject could not exercise his choice during the tests does not stand.

Finally, in *Selvi* the court stated that the requirement of positive volitional act becomes irrelevant in the case of these tests, because the subject is compelled to convey personal knowledge irrespective of his or her volition. The court also held that the object of right against self-incrimination is also to protect an individual in a situation where the state places reliance on the substantive results of cognition.

197. In the case of Narco Analysis Test, the subject speaks in a drug induced state and is not aware of his responses at the time when he makes the statement. In the case of Polygraph and BEOS Tests, the court held that the subject cannot anticipate the content of relevant questions or the probes that will be shown. Moreover the results are derived from the measurement of physiological responses and therefore the subject could not exercise an effective choice between remaining silent and imparting personal knowledge.

Cognition means those intellectual process that allow one to gain and make use of substantive knowledge and to compare ones inner world ( previous knowledge) with outside world ( stimuli such as questions from an interrogator).[198] Therefore Supreme Court held that if self-incrimination clause protects the subject with respect to substantive results of cognition, then the reliance of Polygraph, and BEOS Test result would violate right against self-incrimination.[199]

It may be stated that, *Selvi* decision[200] is not in conformity with *M.P.Sharma*, 8 Judges bench decision and *Kathikalu* , 11 Judges bench decision, which retained the requirement of positive volition act and held that self-incrimination means conveying information based on the personal knowledge of the person giving information. It is in fact based on this volition test, National Human Rights Commission, had issued the guidelines regarding the administration of Polygraph tests. It was these guidelines which were made applicable to Narco Analysis and BEOS test by *Selvi* decision. Thus it may be stated that cognition based theory upon which the court in *Selvi* relied for its conclusion is not in conformity with earlier precedents which was rendered by larger benches. Moreover the attitude revealed by the court in impliedly adopting volition test by reiterating and adopting the tests laid down by National Human Rights Commission on one hand, at the same time holding the tests as unconstitutional by relying on substantive based test on the other hand, is self-contradictory. Thus it may be stated that, theoretical basis on which court made its decision in *Selvi* is not sound. Hence there is a requirement of reconsideration of the decision.

## 4.6 Conclusion

The right against self-incrimination, which is an essential attribute to right to fair trial, is found expression in most of the international human rights instruments and also in the constitution and statutes of many common law countries. When Forensic Psychological Tests are analyzed in the light of this right, it may be stated that even if the noninvasive tests like Polygraph, BEOS, LVA are conducted without consent; there won't be any violation of constitutional right against self-incrimination. Only in the case of Narco Analysis, wherein anesthetic procedure is

198. Ronald J. Allen and M. Kristin Mace**,** *supra* n. 21 at p. 247**.**
199. *Selvi*, *supra* n. 10.
200. It is only a 3 judge bench decision.

involved, requirement of consent may be made mandatory. The study also revealed that the direct use of the results of the Forensic Psychological Tests in certain circumstances is still not self-incriminatory. It is also found that the results of the tests and also the process of administration of the test do not reveal anything more than what was already known by the investigators. Hence the contents so obtained may be regarded as foregone conclusion and as such no constitutional rights would be involved. It may be stated that involuntary administration of the tests does not amount to testimonial compulsion. So the investigative use of Forensic Psychological Tests do not violate right against self-incrimination.

Regarding Interpretation of testimony in Self-incrimination clause, US courts and scholars have adopted different interpretation. Strasbourg Court has adopted volition test in its interpretation of this right. In India, confusion as to interpretation of testimony has been caused by virtue of the decision in *Selvi*. The apex court in *Selvi* had relied on the cognition based theory which is not in conformity with earlier decisions, which was rendered by larger benches. The earlier decisions of the Supreme Court had relied on volition test which accommodated both rights of the accused and scientific investigation.

The cognition based theory which is relied on by the Supreme Court in *Selvi* is unable to accommodate these scientific tests. Moreover the attitude revealed by the court in impliedly adopting volition test, by reiterating and adopting the tests laid down by National Human Rights Commission on one hand, at the same time holding the tests as unconstitutional by relying on substantive based test on the other hand, is self-contradictory. It is also not in conformity with the interpretation adopted by earlier decisions of Supreme Court by larger benches and that adopted by ECtHR. Thus it may be stated that, theoretical basis on which *Selvi* court made its decision is not sound. Hence there is a requirement for reconsideration of the decision. It is also important to note that to maintain fair state individual balance is also an important rationale of self-incrimination. Therefore it is necessary to have a relook into the interpretation of testimony to be adopted by judiciary, which may accommodate both rights of the accused as well as scientific tests based on psychological knowledge. This aspect is examined in the next chapter.

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# Chapter - V

# INTERPRETATION OF THE CONCEPT OF TESTIMONY: AN ANALYSIS IN THE LIGHT OF FORENSIC PSYCHOLOGICAL TESTS

## 5.1 Definition of Testimony: Adoption of Communication Based View

The doctrinal analysis of privilege against self-incrimination turns on the distinction between physical and testimonial evidence. Only testimonial evidence is privileged. As present era witnesses vast developments and advances in soft sciences like psychology many scholars[1] argue that physical testimonial dichotomy may be insufficient to give complete explanation to the privilege against self-incrimination in all situations.[2] Madison Kilbride and Jason Iuliano[3] in their article, state that though *Schmerber*[4] articulated physical testimonial dichotomy, they did not define what physical evidence is and what testimonial evidence is. As there exists no clear test, courts have gone by case to case analysis.

1. Nita Farahany, "Incriminating Thoughts," Vol.64, Stanford Law Review, February 2012, pp.351-408 at p.400 and *See*, Ronald J. Allen and M. Kristin Mace, "The Self-Incrimination Clause Explained and Its Future Predicted," Vol.94 (2), Journal of Criminal Law and Criminology, 2004, pp. 243-294 at pp.259-266. The authors have discussed the problem of defining "testimony." Charles Gardner Geyh, "The Testimonial Component of the Right Against Self-Incrimination," Vol.36, Catholic University Law Review, 1987, pp. 611-642 at pp. 612-14. The author finds that the testimonial/physical framework is at odds with the purposes of the Self-Incrimination Clause.
2 All the legal issues which are presently raised in relation to Forensic Psychological Tests were raised in the past also, whenever any new scientific evidence was introduced. For instance, when finger prints were introduced as evidence, there was a debate that it amounts to violation of self-incrimination. See, *State* v. *Watson*, 49 A. 2d 174 (1946). However courts have adopted a practical approach to the necessities of law enforcement and had come to the conclusion that compulsory taking of finger prints would not come within the ambit of the privilege. Same was the case with other scientific tests like Ballistics, DNA etc. Privilege was interpreted in a manner so as to assimilate scientific developments in criminal justice system. Arthur R. Jr. Seder, "Compulsory Fingerprinting and the Self-Incrimination Privilege," Vol. 37, Journal of Criminal Law and Criminology, 1946-1947**,** pp. 511-514 at pp.512-513, available at http://scholarlycommons.law.northwestern.edu/cgi/viewcontent.cgi?article=3437&context=jclc (accessed on 02/09/2017). See also, Ashish Chugh, "A Reassessment of Self Incrimination Clause," 2006 (8) S.C.C. (Journal) 19.
3. Madison Kilbride and Jason Iuliano, "Neuro Lie Detection and Mental Privacy," Vol.75, Mary Land Law Review, 2015, pp. 163-193 at p.186.
4 . *Schmerber* v. *California*, 384 U.S. 757 (1966).

At this juncture, it is important to discuss the article by Kiel Brennan Marquez, wherein the author was defending mind reading machines[5] developed in recent years.[6] Kiel Brennan states that the term "testimonial" invites competing constructions. One focusing on substantive *product* of disclosure and other one focusing on *communicative process* of disclosure.

The first one is called substantive based view of testimony and the latter one is called communication based view of testimony. Substantive based view locates privilege in the content of what is disclosed. The communication based view locates privilege in the process of disclosure. Kiel Brennan argues that, it is the communication based view which better integrates the case laws and also stands up more persuasively the metaphysical scrutiny. He also argues that substantive based view could not explain mind reading devices and hence communication based view of testimony must be adopted so that it could accommodate at least some of the mind reading devices developed in recent years.

Kiel also discussed case laws starting from *Schmerber* and asserted that it is the communication based view which better explains all the case laws. He discussed *Fisher,*[7] *Doe*[8] and *Hubell*[9] and explains how act of production jurisprudence was evolved based on communication based view of testimony.

For instance, in *Schemerber*[10] court held that the bar under the privilege is only against compelling communications or testimony. *Fisher*[11] which was decided 10 years later had also recognized that the act of producing evidence in response to subpoena can have communicative aspects on their own, irrespective of the contents of the papers produced. In that case, the issue was whether the subpoena compelling defendant's attorney to produce documents would violate right against self-

5 . Mind reading devices may be considered as analogous to Forensic Psychological Tests.
6 . Kiel Brennan-Marquez, "A Modest Defense of Mind Reading," Vol.15, Yale Journal of Law and Technology, 2013, pp. 214-272 at p.271.
7 . *Fisher* v. *United States*, 425 U.S. 391 (1976).
8. *Doe* v. *US*, 478 U.S. 201(1988).
9. *US* v. *Hubbell*, 530 U.S.27(2000).
10 . *Schmerber, supra* n. 4.
11 . *Fisher, supra* n.7.

incrimination. The court had held in negative based on the reasoning that the compliance with the subpoena did not require testimonial act from the accused. It was directed only to his attorney.

The *Fisher* standard was clarified twice. First in *Doe* v. *US* [12] and later in *US* v. *Hubbell.* [13] In *Doe*, the implications of an order were considered. This order required the accused to sign a consent form so as to authorize his foreign bank to release information of his accounts. Here the defendant himself was required to act by signing the consent form and thus authorizing the release of information. The court held that *the act of signing do not disclose any information and hence not testimonial in and of itself*. In *US* v. *Hubbell*[14], wherein the issue was same as that of *Doe*, the accused himself was compelled to produce the documents as per the subpoena. In this case the court held that Government had no pre - existing knowledge of the documents produced in response to the subpoena. The court held that the *compliance with the subpoena is itself testimonial*. Because the subpoena itself is vague and it required the defendant to make mental steps as to the documents he has to produce. Thus, in this case it is the mental steps and not the contents of the documents which are regarded as testimonial. Hence it may be stated that, it is communication based view of testimony which better explains the ratio of all the act of production cases than substantive based view of testimony.

Kiel Brennan also discusses some scholarly articles which bases privilege on substantive based view of testimony. The articles considered by Keil were that of Micheal Pardo[15] and Alan ad Mace.[16] Both these articles were referred in *Selvi*[17] and the decision of the court was also based on these two articles. Both the articles[18] state

12 . *Doe, supra* n. 8.
13. *supra* n. 9.In this case Hubbel was charged with tax related charges and fraud. He was served with subpoena to produce more than thousand pages of documents to investigate possible violations.
14. *ibid.*
15. Michael S. Pardo, "Neuroscience Evidence, Legal Culture, and Criminal Procedure," Vol. 33, American Journal of Criminal Law, 2006, pp. 301-337 at p.301.
16. Ronald J. Allen and M. Kristin Mace, *supra* n. 1 at p.245.
17. *Selvi* v. *State of Karnataka*, (2010) 7 S.C.C. 263.
18. Question for Fifth Amendment in both articles is what relationship the evidence bears to the suspect's cognition. As per Pardo's article the question is whether it expresses mental states with propositional content? See *supra* n.15. And as per Allen and Mace, the question is whether

that suspect has right to refuse to disclose cognitive evidence. He also has right to shield from extraction of certain cognitive evidence. In both the articles[19] the authors had tried to explain their theory by means of two cases, viz, *Estelle* v. *Smith* [20] and *Muniz* v. *Pennsylvania.* [21] However the authors failed to explain by their theory the dictum of the court in *Muniz* v. *Pennsylvania*,[22] as to the 6th birthday question.

In *Estelle* v. *Smith,* [23] prosecution had used the statements made by the accused during court ordered psychiatric examination. Court held that as prosecution had used "substance of the suspect's disclosure" to incriminate him, it is testimonial and hence privileged.

In *Pennsylvania* v. *Muniz*,[24] a driver was suspected of drinking. In order to test his sobriety, he was asked to recall the date of his 6th birthday. He said "no, I don't Know." This statement was later used as evidence to prove his intoxication level. Court had held that driver's response is testimonial because he is required to communicate an express or implied assertion of fact or belief.[25]

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it reflects substantive results of cognition? In both cases it is privileged *ispo facto*. See, *supra* n.16.

19. Micheal Pardo in his article states that Government may not compel the use as evidence the content of suspect's propositional attitude. Propositional attitude refers to mental states with propositional content, *i.e.* so and so is the case and knowledge that such and such is the case. The legal principle is that evidence is testimonial and comes under the privilege when two conditions are satisfied: 1.Evidence discloses the content of suspect's propositional attitudes. 2. Government adduces the evidence for that propositional content. However, further elaborating on the extent of the privilege, Pardo maintains that "the privilege would not preclude compelled tests when used for any purpose other than those that rely on incriminating propositional content. For example, if the tests could be used to determine mental capacity, intent, bias, voluntariness, etc., without relying on incriminating propositional content, then the privilege would not preclude such uses. Thus all mental states are not excluded from the purview of right against self-incrimination. Allen and Mace's substantive view of testimony states that if the evidence amounts to substantive results of cognition, it is privileged. However it is important to note that Pardo's view is criticized by many scholars. For instance, in Madison Kilbride and Jason Iuliano, in their article, state that the problem is that Pardo's position is difficult to square with existing case law. The Court has long emphasized that testimony necessarily involves an act on the part of the individual asserting his Fifth Amendment privilege. In light of these emerging technologies, the Court may need to reconsider this condition. Until it does, Pardo's account cannot find firm support in Supreme Court precedents. See, *supra* n. 3.See also Nita Farhany, *supra* n.1.
20. 451 U.S. 454 (1981).
21. 496 U.S.582 (1990).
22. *ibid.*
23. *supra* n.20.
24. *supra* n.21.
25. However Pardo disagrees with this dictum.

Keil Brennan states that substantive views explained in both the scholarly articles are ambiguous. He states that virtually every data point offered in defense of substantive view of testimony is also accommodated and predicted by a communication based view.[26] Keil also stated that communication based view is more reasonable. To substantiate this, he explains that the substantive construction of testimony takes two forms; narrow and broader. The narrow variant is the one which both Pardo and Allen and Mace propounded. It states that evidence is testimonial if it discloses content of suspect's cognition but not if it discloses only the background mental states. The broader variant stipulates that evidence is testimonial, if it discloses either the content of the suspect's cognition or the background mental states. This view is not defended in any case laws or scholarly articles. Hence Keil considered the broader view for analytical purpose as it encapsulates a metaphysical distinction between mental states which the narrow variant must uphold, if it is to prevail.

For this purpose, Keil again analyzed the articles of both Pardo and Alen and Mace. Keil stated that one of the weaknesses in their theories is that they were unable to explain the dictum in *Muniz*. This is because both the plurality opinion and the dissent in *Muniz* were based on same communication based view of testimony. Regarding the second weakness, Keil states that their theories place reliance on a shaky metaphysical distinction between content of cognition like knowledge of or belief that and background states of mind like drunkenness, anger etc. This point actually becomes important because it divides narrow variant of substantive view from its wider counterpart. There is difference between one being angry or intoxicated and to say that my belief that one person has done a good job as manager

26. Kiel attempted to explain Pardo's theory basing on communication based view of testimony. The first principle of the Pardo's theory was that purely physical evidence is not privileged. According to communication based theory, evidence is testimonial only if its production requires the suspect to engage in communicative act. As extraction of physical evidence requires no communicative act from the suspect, physical evidence is underprivileged. So Pardo's first principle is in conformity with communication based theory. Pardo's second principle is that the evidence is privileged if act of its production embeds testimonial content. This principle is also consistent with communication based theory. Thus Pardo's theory could be explained by means of communication based theory of testimony.

or my knowledge that a body is buried in my background. Though all types of data speak in a broad sense to ones cognition, the latter ones are the outcomes of the cognitive process. *i. e.* The approval that one person represents a belief to which one has consciously come, the presence of piece of knowledge which one is consciously aware. Both these mental states are at a higher level that than anger/ intoxication.

To concretize this distinction, Keil considered *Estelle.* In this case court had held that the privilege applies to post conviction psychiatric evaluation as they compel the convicted person to make potentially incriminating remarks. In fact content of disclosure has made psychiatric report privileged. On the basis of substantive view of testimony, this formulation is ambiguous. Many questions would evolve like, what should be the variable for determining testimonial substance of psychiatric evaluation, whether it should be the content of psychiatric report or the content of conversation between psychiatrist and the subject. If both disclose mental states of high order cognition, no problem would arise. Things would become complicated when two are misaligned. Suppose the content of psychiatric report states the background mental states whereas the conversation requires the defendant disclosure of higher order cognition the question naturally comes which variable should govern. Because of these issues, Kiel states that central question in both *Estelle* and *Muniz* are the same. Both raises the question what it means, when higher order cognition is used as evidence of background mental states for self incrimination purposes. The data in psychiatrists report stating that suspect is a psychopath actually stems from suspects disclosure of higher order belief states to the psychiatrist. Here the object is not to ascertain truthfulness of the statement, in which case, it would be testimonial. But here it is used to prove that he would pose danger to the society. In such situations how psychologist's conclusion is to be evaluated is an important issue. In fact it is the psychologist's conclusion of the subject's disclosure that allowed him to come to the conclusion. But it is not clear that this renders the psychiatrists contention testimonial under narrow variant.

In both *Estelle* and *Muniz*, substance of suspect's disclosure is used against him to infer something about his background mental states. This is the actual

problem. If hypothetical psychiatric report is to be permissible, the underlying metric of testimony is to be transformed. Substance has to be given way to the function. This means that the testimony does not turn on what type of mental states a piece of evidence records. But rather on *whether the purpose of evidence is to establish the existence of high order mental states*. Keil states that, if the privilege is construed to reach the use rather than the content of propositional states, narrow substantive view is really not an argument against mind reading devices. Thus Keil states that, if testimony turns on *what a piece of evidence causes a finder of fact to infer*, than the knowledge or belief states that the evidence records, then all the uses of mind reading machine may not be disallowed.[27]

Keil states that, it is communication based view of testimony that explains the dictums in both *Estelle* and *Muniz*. Regarding *Muniz*, Keil analyses the opinion of Justice Brennan [28] which is the majority opinion, opinion of J. Marshall[29] which also incorporates J. Brennan's opinion and the dissent by Chief Justice Rehanquist.[30] Keil states that not only the plurality view but even dissent view is based on communication based view of testimony. Both the views state that the presence of communicative act triggers Fifth Amendment privilege and their only disagreement is with respect to how this view would apply to '6$^{th}$ birthday question.' For instance, as per Justice Brennan, the question which is important was not whether the act of answering was physical or testimonial in the first place but what the answer of the suspect might allow the fact finder to infer. As to that question, Justice Brennan's answer was that trying and failing to recall the date of 6$^{th}$ birthday is a clear instance of testimony. Justice Brennan analyzed and restructured *Schmerber* case and defined communication as an act that explicitly or implicitly relates a factual assertion or discloses information. Hence it was held that drivers answer fall under the scope of the privilege.

27. Same argument applies with respect to Forensic Psychological Tests also.
28. Unlike other sobriety tests, 6th birthday question violated Fifth Amendment as it required the suspect to engage in testimonial act.
29. The opinion of Justice Marshall, formally incorporates Justice Brennan's logic but offered different broader rationale, and held that every aspect of the field sobriety is testimonial and not just 6th birthday question as all evidence go equally to the suspects mental status.
30. 6th birthday question is merely a means for ascertaining the drivers intoxication level and therefore equivalent to physical components of sobriety tests for Fifth amendment purpose.

C.J. Rehnquist in his dissenting opinion had argued that the *need for the use of human voice does not automatically make an answer testimonial* and the real question was whether the answer was communicative and extorted from the suspect using physical or moral compulsion. Chief Justice states that 6th birthday response was nothing more than adhoc means of assessing sobriety and it is not self incriminating.[31] Keil in his article states that chief justices view of testimony is not different in concept from that of plurality opinion and the difference is only in result. Justice Brennan had also stated that not every verbal statement is testimonial. This means that plurality opinion had also left space for non-testimonial verbal acts. There is actually difference between verbal acts which are nothing more than mechanical and verbal acts that require the speaker to make communicative assertion. As far as Justice Brennan is concerned, 6th birthday question falls under second category.[32]

On analyzing *Estelle*, it could be seen that suspect is required to share his experience with the psychiatrist. This means that he is required to engage in communicative act. Thus it may fall within the privilege. Keil states that *Estelle* could also become difficult, if psychiatrist has prepared report just by observing the subject and not by asking questions. In that case it won't be hit by self-incrimination clause. In fact this prediction was made in *Estell*e. Court had stated that if psychiatrist had simply drawn his conclusion from observations, Fifth Amendment would not come into play. However this matter was left unanswered by the court.

Keil states that, court in *Estelle*, had made doctrinally meaningful distinction between cognitive evidence drawn from observation and cognitive evidence drawn from communicative acts. As far as this distinction emphasis on the presence or

31. C.J. Rehnquist's view was that 6th birthday question is non communicative and is equivalent to participate in a line up.
32. In fact, when we analyze Polygraph and Layered Voice Analysis Test, it could be seen that the verbal statements *i.e*. yes or no answers in the case of Polygraph and statements in the case of LVA may be considered as mere verbal acts which are mechanical. Hence taking cue from *Muniz*, it may be stated that these two tests do not amount to violation of right against self-incrimination. In fact, same is the argument of Keil also who states that most of the mind reading devices only require verbal acts which are mere mechanical. This means that as per *Muniz*, enough space is left for non testimonial verbal acts. Hence it may be stated that *Muniz* dictum is not against Polygraph or LVA Tests. BEOS Test also won't infringe the dictum as no Yes or no answer is required and the examiner reaches the conclusion by just measuring the brain activity.

absence of communication, this is strong evidence in support of the communication based view of testimony.[33] Thus Keil strongly argues that, the court in *Estelle* has left room for evidence from psychiatric evaluations which may also disclose mental states.[34] This implies that just because the tests discloses evidence of mental states, it does not becomes testimonial. This means that *only if mental states are disclosed by communicative acts of the suspect it would become testimonial*.[35]Thus both *Muniz* and *Estelle* could be better explained by applying communicative view of testimony which emphasis on process of obtaining the evidence.

It may thus be stated that the case laws on right against self-incrimination right from *Schmerber* by drawing distinction between suspect is being compelled to serve as evidence and suspect being compelled to disclose or communicate information or facts leading to the conclusion of incriminating evidence, had actually asserted communication based view of testimony. In fact, real evidence or physical evidence is nothing but suspect being compelled to serve as evidence and testimonial evidence is suspect being compelled to disclose or communicate information. Thus, all these case laws by making distinction between real and testimonial evidence is actually applying communication based view of testimony.

It may be stated that interpretation of right against self-incrimination based on communication based view of testimony is more apt in the present era where scientific inventions based on Forensic Psychological Tests are upcoming. If

33. S*upra* n.6. The author also discusses several cases wherein psychiatric tests based on observation were admitted in evidence. See *Jones* v. *Dugger*, 839 F.2d 1441 (11th Cir.1988); *Cunningham* v. *Perini*, 655 F.2d 98 (6th Cir.1981); *Mauro* v. *State*, 766 p.2d.59 (Ariz.1988). Keil strongly argues that silent psychiatric evaluations hypothetical serves as fruitful analogy for mind reading tests.
34. S*upra* n.6. Kiel argues that if the point in *Estelle* is as what was stated by authors like, Pardo, Alen and Mace, that any evidence from a psychiatric evaluation which discloses suspect's mental state be disallowed, then courts discussion of the difference between observations based test and communication based test would be in vain. He states that substantive view does not give much importance to this distinction.
35 . When Forensic Psychological Tests are considered, evidence obtained from BEOS Test may be equated with cognitive evidence drawn from observation. Evidence from Polygraph may also be considered so, though the person answers "Yes or No." The examiner measures the blood pressure, pulse rate, heart beat and skin resistance by using various apparatus and the results are obtained by analyzing these physiological changes. Thus by applying the dictum in *Estelle*, it may be stated that the evidence obtained from Polygraph and BEOS Test are not communicative in nature and hence not testimonial and violative of right against self-incrimination.

communication based view of interpretation of right against self-incrimination is applied, then as stated by Kiel in his article,[36] the question must be whether the test requires the subject himself to disclose his mental attitude? If the interpretation on the right is based on communication based view of testimony, then only if the suspect is required to offer his mental state for recording of evidence, it would amount to self-incrimination, otherwise not.[37] So the test must be whether the piece of evidence is either produced by communicative act or not. Testimony must be construed as process based.

Kiel also states one more reason for accepting communication based view of testimony. He states that in some scholarly articles[38] certain evidences based on mind reading machines are regarded as testimonial like, i.e. it would be an alloy composed of multiple parts, some of which are testimonial and others are physical. Kiel states that such situation occurs if substantive based view of testimony is adopted wherein testimony would refer to an aspect of evidence that records content of cognition. But if testimony refers to act of communication required to produce evidence, then there won't be any middle case. In that case, there would be only physical evidence and testimonial evidence. Hence Kiel states that theory based on communication based view of testimony is more sound.

If instead of communication based view, substantive based view is adopted, it would result in inconsistent and unpredictable results, which may be detrimental both to the interests of accused and to the state. The interpretation based on substantive based view also cannot accommodate many scientific tests. Hence adoption of communication based view of interpretation alone would promote both scientific investigation and protect human rights of the accused. This interpretation is also in

36 . See *supra* n.6. Keil while supporting observation based psychiatric evaluation has posed two questions. 1. Does the court mean that psychiatric evaluation is problematic because it disclosed mental states as the word substance implies.2.Does the court mean that psychiatric evaluation is problematic because it required smith himself to disclose the mental states.

37 . See *ibid*. Keil states that *Estelle* courts treatment of 'observation only' hypothesis is strongly in favor of this interpretation.

38 . William Federspiel, "1984 Arrives: Thought (Crime), Technology, and The Constitution," Vol.16, William and Mary Bill of Rights Journal, 2008, pp. 865-900 at p.894. See also, Sarah E. Stoller & Paul Root Wolpe, "Emerging Neuro Technologies for Lie Detection and the Fifth Amendment," Vol.33, American Journal of Law and Medicine, January 2007, pp.359-375 at p.369. In *Schmerber*, 384 U.S. 757 (1966), this confusion could be seen. See also, Madison Kilbride and Jason Iuliano, *supra* n. 3at p.178.

consonance with the objective of state individual balance, which is one of the important rationales of right against self-incrimination. This interpretation is also consistent with the interpretation adopted by human rights institutions like European Court of Human Rights.[39]

It may be summed up that interpretation of right against self-incrimination must be based on communication based view of testimony, which could accommodate both human rights of the accused and scientific tests based on psychological knowledge. As per this interpretation, salient variable is presence or absence of communication. Even verbal answers are not precluded, if it is merely mechanical. Similarly, observation only psychiatric tests are also not proscribed as per the privilege. Just because mental states are revealed by the evidence, it will not *ispo facto* render the evidence testimonial. The test must be whether the test requires the subject himself to reveal his mental states. If communication based view is accepted whether a Forensic Psychological Test is constitutional or not will be contextual and technology specific.

## 5.2 What is Communication For the Purpose of Self Incrimination Clause?

As communication is the essential ingredient to constitute testimonial act, it is important to analyze the definition of communication. In this regard also, the article by Kiel Brennan may again be relied upon. Article 20(3) of the Constitution of India is analogous to Fifth Amendment of the US Constitution. Hence definition given by Kiel is of much utility. Kiel had referred Black Law dictionary and case laws and scholarly articles and synthesized the meanings so as to define communication.

In Black law dictionary, communication is defined as "sharing of Knowledge by one with another." Kiel states that this definition is consistent with the case laws. As per case laws to count as testimonial, communication must either relate a factual

39 . Strasbourg Court gives emphasis to volition test to determine whether a piece of evidence is testimonial or not. The analysis of these case laws reveals that, what is considered as objectionable by the court is the placing of legal obligation on the accused to cooperate with the authorities by conveying the incriminating information. Hence it may be stated that, the right against self-incrimination is, means based and not material based. Andrew Ashworth and Mike RedMayne, *The Criminal Process*, Oxford University Press, UK, (4th edn., 2010), p.151. All these aspects are already analyzed in detail in Chapter IV.

assertion or disclose information. This clearly implies that "sharing "is a key component in the definition.[40] Keil asks what is it to share knowledge. To answer this question Keil refers to *Schmerber* plurality which suggested that communication necessarily evolves "participation" from the subject. He also referred to Sarah Stoller and Paul Wolpe who emphasized on suspect's testimonial capacities.[41] Analysis of Dove Fox's interpretation was also made.[42] Accordingly, evidence would be testimonial, only if it conveys suspect's intention to communicate his thoughts. Principles in act of production cases were also incorporated.[43]

Thus Keil defined communication for the purpose of Fifth Amendment as follows. In order to be testimonial, communication must stem from an intentional act, on the suspect's part that discloses information about his mental state. The definition has three parts.

1. The act must be intentional.

   The suspect does not necessarily intend to disclose the thing disclosed. But the disclosing act has to be intentional. It cannot be unconscious.
2. The act must actually assert or disclose something.
3. The assertion or disclosure must reveal the content of the suspects mind.

Three important variables involved in this definition are intentionality, disclosure and mental states. It seems that most confusing one is intentionality.[44] While analysing these variables, Kiel had compared mind reading machine with observation only psychiatric examination. In both cases, firstly, cognitive evidence from the suspects who are not voluntarily sharing it, is extracted. Secondly, in both,

40 *supra* n. 6.

41 This means that suspect must have some sort of control over the information he communicates in order to implicate the privilege. See, Sarah E. Stoller and Paul Root Wolpe, *supra* n. 38.

42 Dov Fox, "Right to Silence as Protecting Mental Control," in M. Freeman, *Law and Neuroscience*, Vol.13, Current Legal Issues, Oxford University Press, London, 2010, pp.1-26 at p.18, available at https://papers.ssrn.com/sol3/papers.cfm?abstract_id=1617410 (accessed on 21/09/2017).

43 See *US* v. *Hubbell*, 530 U.S.27 (2000); *Doe* v. *US*, 478 U.S. 201(1988); *Fisher* v. *United States*, 425 U.S. 391 (1976), *Muniz* v. *Pennsylvania*, 496 U.S.582 (1990); As stated by the court in *Hubbell*, by producing documents in compliance with a subpoena, suspect would by his own volition, "admit that the papers existed, were in his possession or control, and were authentic." Kiel also referred to *Muniz* plurality which held that to be testimonial communication must reflect a volitional act on the part of the suspect. See, *supra* n. 6.

44 Kiel also opines so. *ibid.*

the doctrinal question is whether the mechanism involves a communicative act on the suspect's part. Thus the main question which was analysed was whether observation only psychiatric evidence and mind reading mechanism cause the suspect to engage in an intentional act that discloses information about his mental states.

In order to analyse whether the suspect by submitting to mind reading machine is forced to engage in intentional act, Kiel in his article had stipulated four different scenarios.

1. Dream catcher:[45] catching content of dream when suspect sleeps.
2. Basic Polygraph:[46] Machine is hooked and questions are asked. The subject's body will provide involuntary information that may germane to his guilt.
3. Smart polygraph:[47] The machine also read content of cognition in real time. *i.e.* when questions are asked. The police will have full access to his thoughts. But there is no guarantee that the thoughts are truthful.
4. Digital serum:[48] In this case, using a switch police could transform activities in brain and subject is constrained to answer truthfully.

The first and the fourth scenarios do not force the subject to engage in intentional act. It seems that the fourth scenario is designed precisely to circumvent suspect's intentionality.[49] In first and the fourth situations though seems fictional are analogous to Narco Analysis in the sense that evidence is obtained when the person

45. *ibid.* Kiel explains that in the first scenario Dream catcher, the Government devises a machine which is able to capture the contents of a suspect's dream, while he sleeps. The government plans to use the content of the captured dream as well as its interpretation as evidence of the alleged crime. It is assumed that both the captured dream and its interpretation are reliable.
46. *Ibid.* The second scenario explained by Kiel is basic polygraph. Here Government devises a machine which takes detailed biometric data from the suspects like data which measure stress, agitation, involuntary responsiveness etc. when the suspect is hooked up in the machine and is questioned , his body would involuntarily provide the information which may germane to his guilt.
47. *ibid.* The third scenario explained by Kiel is smart polygraph. Here it is same as the second scenario, except that instead of taking biometric data, the machine can "read" the content of cognition in real time. When a suspect is hooked up to the machine and is questioned, the investigating agency could get full access to his thoughts. But there is no guarantee about the reliability of the thoughts.
48 . *ibid*. The fourth scenario is the digital serum. Here the Government devises a machine in which the suspect's brain is hooked up. At the flip of the switch, synapses fire in the subject's brain, which replicate the neural patterns of the mental states which may correspond to "interpretation, "answer formulation, and "truthful disclosure". If the police ask questions and then flip the switch, the suspect will have no choice than to interpret the question and answer truthfully.
49. *ibid*.

is not conscious. In Narco Analysis also once the truth serum is administered, the subject's inhibition is removed. It is believed that he answers truthfully to all the questions put to him.[50]

When the second and the third scenarios are considered, it could be seen that they exist in reality. The second scenario is analogous to Polygraph. The third scenario seems analogous to BEOS Test. In both these cases, the suspect does not appear to be communicating, as his disclosures are not in usual sense intentional. But at the same time the disclosure at some level require the suspect's participation. This means that he has to be conscious, awake and thinking for the extraction of evidence to work.[51] Hence the central question in the case of traditional Polygraph and Smart Polygraph is that whether the production of biometric data in the case of traditional Polygraph or triggering mental states as in the case of Brain Imaging involves an intentional act on the part of the suspect.[52]

First, Kiel considered whether being stimulated could be considered as engaging in communication. For this purpose, he relied on Mathew Holloway's[53] analysis. Holloway's view is that presence of mental stimulation would imply an occurrence of a communicative act. In all mind reading machines, stimulation is recorded. The machine would allow examiners to determine how a suspect responds internally or physiologically to different stimuli. But it is also important to understand what does the presence of stimulation would mean doctrinally. According to Holloway, it is stimulation which separates brain imaging evidence from other

50. If Kiel's definition of communication is applied, it could be seen that evidence obtained by Narco Analysis could not be considered as testimonial in nature. Keil in his article states that evidence obtained from the first and the last one are non-testimonial.
51. *supra* n.6 at p.251.
52 . *ibid*.
53. Matthew B. Holloway, "One Image, One Thousand Incriminating Words: Images of Brain Activity and the Privilege Against Self-incrimination," Vol.27 (1), Temple Journal of Science Technology and Environmental Law, 2008, pp.141-175 at pp.144-53. According to the author, any kind of brain activity produced by polygraph like scenarios are 'communicative in nature." He had based his argument on substantive based theory. By focusing on what extracted evidence records, Holloway states that brain imaging tests allows physical operation to be disclosed to third parties in a manner that discloses a suspect's belief and knowledge. Hence it is violative of Fifth Amendment standard. He thus focuses on what extracted evidence records instead of the process by which it is recorded. Kiel in his article states that Holloway's analysis is instructive, for it states what communication is not. See, *ibid*.

physical evidence. He states that physical evidence is stagnant whereas evidence from brain imaging is stimulus specific. This means that the evidence would vary according to the stimuli which are shown to him. Thus brain activity is a dynamic process and it changes with the shift in stimuli. Hence Holloway infers that evidence of the brain activity communicates information concerning the beliefs and knowledge of the subject. Hence according to Holloway, brain imaging evidence is communicative and protected under Fifth Amendment.

Kiel, while analysing Holloway's interpretation, states that Holloway's use of the term communication is different from that of courts use. According to Holloway, evidence is communicative in so far as a viewer is able to interpret it. In Kiel's opinion this interpretation is backward looking.[54] Courts had made specifically clear that for Fifth Amendment purposes communication turns on the role the communicating subject plays and not the role the listening or the observing subject plays.[55] In Holloways view, Brain Imaging Evidence is communicative because of two reasons. Firstly, it changes dynamically in response to different stimuli. Secondly, the viewer can interpret the content from these changes.

However in Kiels view, these conditions are insufficient for an act to be communicative. Regarding the second reasoning, Kiel states that observer's role is irrelevant. As to the first reasoning it was stated that dynamism of evidence goes only to the presence of stimulation. However for an act of communication something more than the presence of stimulation is required. It requires intention on the suspect's part and also requires him to convey information above and beyond being stimulated in a way that simply produces information. As per courts definition,[56] of the term communication requires an intentional act from the subject. It is that, what distinguishes an act of communication from presenting stimulation. Both may appear as same from an observer's perspective, just as blood sample might suggest intoxication in the same effect as asking the subject 6th birthday question. But this exactly is the very crux of communication based view. It turns *not on substantive*

54 *ibid*.
55 *id.* at p.253. See also Madison Kilbride and Jason Iuliano, *supra* n. 3 at p.178.
56 *Schmerber* , *supra* n.4.

*output, but on the process of disclosure*. Thus, there is distinction between stimulation and communication.

Kiel was stating this about Smart Polygraph and Basic Polygraph. In fact this equally applies in the case of Polygraph and BEOS. In both, physiological responses are obtained on being exposed to stimuli. But just because of that, it cannot be stated that there is intentional act on the part of the subject. Though in both cases, the subject may be producing information, in neither of these cases, the production of information is intentional.[57] In fact no aspect of Polygraph or BEOS is forced on the subject. To be forced means to have one's volition redirected. Kiel explained the term 'to be forced' by means of some illustrations.

> "When sun becomes too bright, I was forced to close my eyes. This may mean that a change in external circumstance has made it necessary for me as a willing agent to intentionally close my eyes. But that does not make sense to say that "when doctor hit my knee with his mallet, I was forced to lift my leg. It may be true that when doctor hits with the mallet, I may lift my leg. But that force does not perspicuously describe the reason for it."[58]

Kiel states that same is the situation with Polygraph scenarios. In both cases, the suspect experiences stimulation in response to external stimuli. He is not forced to engage in an intentional act. As it involves no intention, the act of producing evidence in Polygraph scenarios is not communicative and hence it is unprotected. In Polygraph, the questions by the examiner and in BEOS the probes presented by the examiner are the stimulus. In Layered Voice Analysis, the questions posed by the examiner are the stimuli and though the subject answers to it, the substantive content of those answers are irrelevant. They are just like "yes or no" answers in Polygraph. The mental states represented by those answers alone are considered. In all the cases the subject experiences stimulation in response to the external stimuli. However he is not forced to engage in an intentional act. In all these cases there is no intentional act on the part of the subject which discloses information as to his mental states. Hence it may be stated that the evidence obtained by means of Polygraph, BEOS and LVA

57 . Kiel was stating about smart polygraph and basic polygraph. But they are analogous to BEOS and Polygraph.

58. *supra* n. 6.

are not communicative and hence not covered under Right against self-incrimination. In the case of Narco Analysis also he is not acting intentionally. If he does so, the very object of the test becomes futile.

Kiel also considered opposite views which had stated that Polygraph scenarios involve communication on the part of the suspect. This actually requires showing that involuntary responses they produce are 'intentional.' Kiel considered *Gholson* v. *Estelle,*[59] wherein one version of this argument was raised, when court held that observation only psychological evaluation in fact required the subject to engage in acts of " communication." After considering the complete arguments, Keil stated that unwilled responses from a suspect can constitute "communicative acts" if those responses are understood to involve inherent intentionality. He stated that "for this to be true, the theory of intention must be something as follows.

> "I act intentionally whenever my heart beat rises or whenever a thought flashes through my mind, regardless of outcomes stems from my will. The theory of intentionality must be one that inheres in the background mental and physical processes rather than acting as causal impetus for physical and mental process. Thus heart beating, thought flashing etc., are intentional acts, though they do not amount to "intention" in every day sense."[60]

Kiel states that intention as per his definition of communication must have the same meaning as in criminal law. Thus according to Kiel, mind reading devices would not certainly induce "communicative acts in a sense germane to Fifth amendment."[61] Thus "without mental intent to communicate there can be no communicative behavior."[62] Hence the constitutional analysis of mind reading devices must be

59. 675 F.2d 734 (5th Cir.1982). In this case court had held that observation only psychiatric evidence would trigger Fifth Amendment. The examination was conducted in order to produce physiological response as a stand in for verbal disclosure. Psychiatrist had interrogated the subject and observed his physical response just like polygraph. The court held that these physiological responses, despite physical were in fact testimonial in nature.
60. See *supra* n.6. Kiel states that this view is not only indefensible but also counterintuitive. It strikes a dissonant chord against the "backdrop of criminal laws which distinguishes so sharply between actions and intention".
61. *ibid.*
62. Paul Root Wolpe, *et.al*., "Emerging Neuro Technologies for Lie-Detection: Promises and Perils," Vol.5, American Journal of Bioethics, March-April 2005, pp.39-49 at p. 39.

factual and technology specific. In fact same arguments could be raised with respect to right against self-incrimination under Article 20(3) of the Constitution.

There are also many articles which assert that only communication based view could properly explain the issue of right against self-incrimination.[63] For instance, in Neuro Lie Detection and Mental privacy, Madison Kilbride and Jason Juliano, stated that indeed, if all evidence that communicates information is barred, then no evidence would be admissible.[64] Hence they stated that only "communicative acts" on the part of the person who asserts the privilege would fall within the ambit of self-incrimination privilege.[65]This means that if a non-communicative act of a person produces evidence which in turn communicates facts to the jury, the privilege will not apply.[66] Applying this test the authors stated that Brain Fingerprinting which requires no communicative act from the subject do not violate right against self-incrimination.[67]

Charles. G. Geyh also in his article has also supported communication based view of testimony.[68] He had defined testimony as the transmission of information

63. Aaron J Hurd, in his article also adheres to communicative based view of testimony, when he argued that Neuro Imaging evidence is physical, as the procedure used to acquire the evidence does not require a deliberate response on the part of the accused. See, Aaron J. Hurd, "Reaching Past Fingertips with Forensic Neuroimaging—Non- Testimonial Evidence Exceeding the Fifth Amendment's Grasp," 58 LOY. L. REV. 213, 221–47 (2012) as cited in *ibid*. Similarly though, Micheal Pardo in his article, states that evidence is testimonial whenever it provides an inductive link to an individual's epistemic state, he also recognizes that testimony is usually accompanied by a communicative act. Michael S**.** Pardo, "Self-Incrimination and the Epistemology of Testimony," Vol. 30, Cardozo Law Review, 2008, pp.1023- 1046 at p.1041. Communicative based view of testimony also receives support in article by Dov Fox. After discussing several cases like *Schmerber* v. *California*, 388 U.S. 218 (1967); *US* v. *Wade*, 328 U.S. 463 (1946), *Gilbert* v. *California*, 388 U.S. 263 (1967), *Fisher* v. *US*, 328 U.S. 463 (1946) and *US* v. *Hubbell*, 530 U.S. 27 (2000), *Munnis* v. *Pennsylvania*, 496 U.S.582 (1990), Fox states that the test to determine whether there is self-incrimination or not, is whether the process of acquisition of information by the Government involves active and intended transmission of internal knowledge about the outside world by the accused. He states that the process of evidence gathering is given importance than product of the information in determining violation of right against self-incrimination. See also, *supra* n. 42.

64. Madison Kilbride and Jason Iuliano, *supra* n. 3.

65. *id.* at p.175.

66. *ibid.*

67 . *id.* at p.177.

68 . Gardner Geyh, *supra* n. 1 at pp. 623-625. The author was arguing based on the stipulations made by Wigmore. Wigmore was the first to make the proposition that self-incrimination applies only to testimonial compulsion.

tending to substantiate the existence or non-existence of a fact or other matter.[69]This definition is consistent with the definition given by Kiel. Moreover the analysis of the history of the privilege against self-incrimination, also asserts communication based view of testimony. History reveals that the privilege was developed as a result of reaction to the Ecclesiastical Courts *ex officio* oath by means of which it compelled the accused to make incriminating " testimonial statements" before any charges had been framed against him.[70]

Hence it may be stated that communication based view is supported by scholarly works. It could be seen that to amount to testimony, the main question involved is whether there is any communicative act on the part of the subject which discloses factual assertion or discloses information.

### *5.2.1 Physical /Testimonial Divide in Case Laws, Whether Satisfies Communication Based View?*

Apart from act of production cases in USA, discussed before, there are also other case laws which support communication based view. For instance, in *Anderson* v. *Maryland,* [71] the central question addressed was whether a person's Fifth Amendment privilege is violated when evidence of business records seized during the search of his office was introduced into evidence. In this case also as in *Fisher,*[72] court had emphasized the minimal role played by the accused in furnishing and authenticating the documents in question. The court held that search and seizure of the records were conducted by law enforcement personnel. Hence court held that there is no communicative act on the part of the accused and therefore there is no violation of right against self-incrimination. In all these cases it was emphasized that it was the act of producing the documents and not the content of the documents

69. *ibid.*
70. Alan S. Becke, "Admissibility of Testimonial By-Products of a Physical Test," Vol.24, University of Miami Law Review, 1969, pp.50-59 at p.53. In this article, the author states that only disclosure by utterance would fall within the preview of the privilege against self-incrimination. This would mean that the privilege would apply when there is an extortion of evidence from the accused person. Only such an interpretation would be consistent with the history of the privilege against self-incrimination.
71. 427 U.S. 463 (1976).
72. *supra* n. 7.

which is to be considered.[73] Thus all these cases stress on communication based view of testimony.

When we analyze, *Schmerber*[74] line of cases, it could be seen that those cases also could be better explained in the light of communication based view of testimony. For instance in *Schmerber* it is always argued that court laid down physical testimonial divide. But by holding that privilege against self-incrimination creates a bar against compelling communications or testimony from an accused and not making the accused the source of real evidence, court implicitly adopts communication based view of testimony. The Court stated that that whether the evidence counts as physical or testimonial depends on the process by which the evidence acquired or evaluated "implicated "the accused's testimonial capacities.[75] *Schmerber* had defined testimonial act as an assertive conduct which reflect the accused's subjective intent to communicate his thoughts to another.[76] This definition also seems to be in consonance with Kiel's definition.

Similarly in the companion cases like *US* v. *Wade* [77] and *Gilbert* v. *California,*[78] the court had permitted to compel the suspect to give his physical

73. It is also important to note that in USA after abolition of mere evidence rule in *Wardon* v. *Haydon*, 387 U.S. 294 (1967), the traditional constitutional protections for private papers were swept away. Presently Fifth Amendment protection is only with respect to compulsory preparation and production of one's own papers. Thus private papers are no more likely to be excluded than any other evidence. When Indian law is analyzed, it seems that still it is *Kathikalu,* A.I.R. 1961 S.C. 1808 which governs, because of the apparent inconsistency between two Supreme Court decisions on the issue. In *State of Gujarat* v. *Shyamlal*, A.I.R. 1965 S.C. 1251, the apex court held that s. 94 Code of Criminal Procedure,1973 do not include accused. However a later decision *V.S. Kuttan Pillai* v. *Ramakrishnan*, (1980) 1 S.C.C. 264, seems to have taken a contrary view. So *Kathi Kalu,* which was 11 bench decision seems to govern the principle. The Court held that production of documents except which formed written testimony originating from the personal knowledge was not protected under Art. 20(3). The court also took recourse to s. 139 of Indian Evidence Act which provides that a person summoned to produce documents does not become a witness by the mere fact that he produces it. He could not be cross examined unless and until he is called as a witness. Same view was taken in *M/s Kuriland (pvt) Ltd* v. *P.J. Thomas*, 2008, Kerala High Court, available at https://indiankanoon.org/doc/1392289/ (accessed on 30/05/2016),wherein, it was held that mere production of documents by the accused without being a witness will not violate right against self-incrimination. H.M. Seervai, *Constitutional Law of India*, *Vol. 2*, Universal Law Publishing Co., New Delhi, (4th edn., 1996), pp. 1063-1064. In his book, the author had stated that *Kathikalu* had diluted the protection considerably by distinguishing "production of document" from the phrase "to be a witness," Thus it may be stated that even with respect to private documents wherein privacy of mind is more involved, production of the document *per se* is not considered as violative of right against self-incrimination as per Indian law also.
74. *Schmerber* v. *California*, 384 U.S. 757 (1966).
75. *ibid.*
76. *ibid.*
77. 388 U.S.218 (1967).

evidence to the investigators even when the evidence was in the form of traditional modes of testimonial communication like speaking and handwriting. In *Wade*, the accused was required to stand in a line up wearing strips allegedly worn by the defendant and speaking the words allegedly spoken by him, when he robbed the bank. In that case, the court held that neither his body nor his voice was used for their factual content but only as identifying characters. Hence there is no violation of the privilege.

Similarly in *Gilbert*, where handwriting was in question, court applied the same dictum as in *Wade*. Thus it may be stated that in both the cases, though court states that the distinction comes from physical- testimonial divide, the actual difference is between compelling the accused to make communication and compelling him to become a source of real evidence. The actual test is whether there is communicative act on the part of the person who asserts the privilege. If the answer is in affirmative, there is violation of the privilege. Thus it may be stated that in these cases, though, courts stress on physical – testimonial divide, court has indirectly used communication based view of testimony.[79]

### *5.2.2 Indian Position*

The interpretation of the right against self-incrimination based on communication based view is also in consonance with judicial decisions in India. For instance, when we analyze the landmark decisions like *MP Sharma*[80] and *Kathikalu*[81] line of cases, it could be seen that they actually recognizes communication based view of testimony in interpreting the term " to be a witness." In *M.P. Sharma* case, court held that "to be a witness" include not merely giving oral evidence but also producing documents or making intelligible gestures as in the case of dumb witnesses or the like. Such evidence could be furnished through lips, production of a thing or a document or in other modes. Court also observed that every positive volitional act which furnishes evidence amount to testimony. The testimonial

78. 388 U.S. 263(1967).
79. *supra* n. 1 at p.400.
80. *M.P. Sharma* v. *Satish Chandra,* A.I.R. 1954 S.C. 300.
81. *State of Bombay* v. *Kathikalu Oghad*, A.I.R. 1961 S.C. 1808.

compulsion connotes coercion which procures the positive volitional evidentiary acts of the person as opposed to the negative attitude of silence or submission on his part. This means that there must be communicative act on the part of the person who claims the right. Thus it may be stated that *M.P Sharma* case, has impliedly recognized communication based view of testimony.

When *kathi Kalu Oghad* is analysed, it could be seen that the apex court has expressly applied communication based view, when it interpreted the expression, "to be a witness". The court held that "To be a witness" means imparting knowledge in respect of relevant facts, by means of oral or written statements by a person who has personal knowledge of the facts to be *communicated t*o the court or to a person holding an inquiry or investigation. Majority judges relied on the distinction between testimonial or communicative evidence as opposed to real or physical evidence. The court concluded that right against self incrimination applies only to testimonial evidence and not to the latter. Thus it may be stated that the rule of interpretation of the expression "to be a witness "as laid down by *Kathikalu* is in consonance with communication based view of testimony as in the case of act of production cases.

In *Selvi*[82] also, court referred *Kathikalu* and had stated that testimonial act must mean conveying information based upon the personal knowledge of the person giving the information[83]. It cannot include merely the mechanical process of producing the documents in court which may throw light on any of the points in controversy, but do not contain accused's statement based on his personal knowledge. However court did not apply the ratio in *KathiKalu* when it decided whether Forensic Psychological Tests like polygraph, BEOS and Narco Analysis are violative of Article 20(3). The court concluded that no analogy could be made between these tests and the production of documents.[84] The Court stated that requirement of positive volitional act becomes irrelevant since the subject is compelled to convey personal knowledge irrespective of his or her volition. The Court also held that the object of right against self-incrimination is also to protect an

82. *Selvi* v. *State of Karnataka,* (2010) 7 S.C.C.263, 357.
83. *ibid.*
84. *ibid.*

individual in a situation where the state places reliance on the substantive results of cognition.

In *Selvi,* court referred the scholarly article of Allen and Mace[85] to define cognition. Accordingly, cognition means those intellectual process that allow one to gain and make use of substantive knowledge and to compare ones inner world (previous knowledge) with outside world (stimuli such as questions from an interrogation).[86] Therefore, the Supreme Court held that if self-incrimination clause protects the subject with respect to substantive results of cognition, then the reliance of Polygraph test result would violate right against self-incrimination.[87] The court in *Selvi,* though impliedly recognized communication based view of testimony in its interpretation of the expression 'to be a witness', did not apply it in reaching the conclusion. The conclusion in *Selvi* decision was based on substantive based view of testimony. It may be stated that in this era of scientific and technological revolution, interpreting self-incrimination clause based on substantive based view is not proper. It may be stated that court ought to have applied communication based view of testimony in interpreting self-incrimination clause under Article 20(3) to suit to the needs of the modern scientific developments. If this interpretation is taken, it could accommodate both scientific tests based on psychological knowledge and human rights of the accused.

### *5.2.3 New Test Suggested*

To constitute violation of right against self-incrimination, the test suggested is:

1. Whether the evidence is testimonial in nature? And
2. Even if it is testimonial**,** whether it creates evidence either novel or unknown, that the investigators could not otherwise lawfully obtain?

For the evidence to be testimonial, there must be communication and communication must stem from an intentional act, on the suspect's part that discloses information about his mental state.

85. *ibid.*
86. *ibid.*
87. *ibid.*

The second test deals with forgone conclusion theory**.** This means that even if the evidence is testimonial, if it does not create evidence either novel or unknown that the investigators could not otherwise lawfully obtain, there will be no violation of right against self-incrimination. Only if the answers to both the questions are in affirmative there is violation of right against self-incrimination. Thus, whether a Forensic Psychological Test violates right against self-incrimination is a fact specific and technique specific issue.

Now, it is important to consider judicial pronouncements in analogous situations like compelled psychiatric examinations and compelled decryption of encrypted data or compelled production of pattern locks like finger prints.

### 5.3. Compelled Psychiatric Evaluations and Forensic Psychological Tests

In psychiatric examinations though several methods are used, the primary tool used in the examinations is a thorough and wide ranging discussion with the patient himself to get information about him without leaving any facet of his personality, his mental process, his desires or his untouched past.[88] The psychiatrist may also use X - rays, blood tests, encephalograms etc. to access the physiological causes. He would also elicit verbal responses by using ink blots, pictures, verbal phrases etc.[89] Apart from all these, the doctor may also closely observe the emotional attitude of the subject as revealed by his demeanor evidence like tone of his voice, bodily movements, reactions such as sweating, shaking from nervousness etc.[90] Thus the information gathered by him includes any indication of physiological defects and verbal communications and expressions of emotions which act as key to his orientation and also the content of his conscious and subconscious ideas.[91]

88. *Tippet* v. *Maryland*, 436 F.2d 1153 (4th Cir.1971). See also, Robert H Aronson, "Should Privilege Against Self Incrimination Apply to Compelled Psychiatric Examinations," Vol.26 (1), Stanford Law Review, November, 1973, pp.55-93 at p.60.
89. These are tests like Rorschach test in which the subject is shown a series of ink blots and is asked what they mean to him. Other test is thematic appreciation test, in which the subject is shown several pictures of an ambiguous nature and is requested to tell a story about each of them .See, Note, "Requiring a Criminal Defendant to Submit to a Government Psychiatric Examination: An Invasion of the Privilege Against Self Incrimination," Vol. 83(3), Harvard Law Review, January 1970, pp. 648-671 at p.652.
90 . *id*. at p.653.
91 . *ibid.*

In a number of cases[92] the courts have classified disclosures made to psychiatrists during the examination as exhibition of the part of the body *i.e.* the mind and have characterized the disclosures as real evidence.[93] The reasoning given by the court is that the words spoken in answer to the psychiatrist's questions are not sought for their factual content, but only as an indication of state of mind. In Polygraph and LVA also same is the case. The factual content of the statements are not given importance. The responses are elicited as physical evidence. At this juncture, it is important to note that even in *Schemerber*,[94] it was recognized that the results of Polygraph Test is in the nature of physical evidence. Thus by applying the dictums in analogous case laws, it may be stated that the tests like Polygraph and LVA do not amount to self-incrimination.

In fact in many cases, courts[95] have even stated that in the case of some psychiatric tests revealing mental conditions,[96] the evidence disclosed by physical and mental examination of the accused even without consent or in the absence of counsel cannot be treated as violative of right against self-incrimination, provided the test is lawful and reasonable and certain safeguards are in place[97].

At this juncture, the opinion made by Prof Inbau regarding insanity tests, is worth mentioning.[98] Professor Inbau had that stated that, these tests may reveal state of mind of the person and may provide a link in the chain of evidence. But the result of the test has no bearing upon the question whether he actually committed the crime. Hence these tests do not violate right against self-incrimination.

92 . *US* v. *Weiser*, 428 F.2d 932, 936 (2d. Cir. 1969); *Battle* v. *Cameron*, 260 F.Supp.804, 806 (D.D.C.1966); In *US* v. *Cohen*, 530 F.2d 43(5th Cir.1976), the court had held that ordering psychiatric examination concerning the insanity defense do not *per se* violate Fifth Amendment. In some circumstances the psychiatrist may use the statements made during the interview not for the truth of the matter asserted, but as evidence of patterns of association.

93. Robert H Aronson, *supra* n. 88.

94. *Schmerber , Supra* n. 4.

95. *State* v. *Coleman*, 123 S. E. 580, 582 (W.Va.1924).

96. Like Tests in which defense of insanity is made.

97. *Blocke*r v. *State*, 110 So. 547 (1926).

98. Fred. E. Inbau, "Self Incrimination: What can an Accused Person be Compelled to do?," Vol.28, Journal of Criminal Law and Criminology, July-August 1937, pp. 261-292 at pp. 282-286, available at http://scholarly commons. law.nort hwestern.edu/cgi/ viewcontent. cgi?article =2721&context=jclc (accessed on 27/01/2016).

Similarly, the results of the Polygraph Test that there is deception or no deception or that of BEOS, that there is experiential knowledge or not, are also not determinative of guilt. They only give a lead to the investigation. Just like psychiatric examinations, they are also inherently voluntary rather than coerced. In BEOS even without a statement from the suspect, the results are obtained. In the Polygraph and LVA, though statements are made, the content of the statement is not important. So it could be stated that just like psychiatric evidence, the results of these tests also could be considered as real and not testimonial in nature.

It is usually argued that Forensic Psychological Tests must be read analogous to observation based psychiatric tests. Two important cases which were decided on demeanor based psychiatric tests are *United States* v *Hinckley,*[99] and *Jones* v. *State*[100]

In *Hinckley,* the trial court had accepted the suspect's insanity plea and rejected demeanor evidence as violative of Fifth Amendment. But in *Jones,* the approach of court was not that. In both cases, the police officer gave opinion evidence based on the demeanor of the suspect during custodial interrogation without satisfying procedural safeguards. However Andrew J Ferron states that *Hinkleys* demeanor evidence would also had been accepted by the court if the Government had not insisted to accept the statement made by Hinkley.[101]

In *Jones* v. *State,*[102] two hours after his interrogation he cried, and confessed his crime of kidnapping, robbery and sexual battery. But later he moved to suppress his statements on the ground that there were no *Miranda*[103] warnings. Though the statements were excluded the police officers evidence as to Jones demeanor and his opinion that Jones was sane was admitted into evidence. The court convicted Jones and the Eleventh Circuit Court of Appeals held that as the evidence was based on Jones demeanor it could be separated from his statements and held as admissible. In fact this decision is equally applicable in the case of Polygraph evidence, wherein the

99. 672 F.2d 115 (DC Cir. 1982).
100. *Jones* v. *State,* 465 So.2d 1330 (Fla App 1985).
101 . See, Andrew J. Ferren, "Fifth Amendment Limitations on the Use of Police Testimony to Rebut the Insanity Defense," Vol. 58(1), Chicago Law Review, 1991, pp. 359-389 at p 367.
102. *supra* n. 100.
103 . *Miranda* v. *Arizona,* 384 U.S. 436(1966).

verbal responses of the subject are irrelevant and the examiner comes to the results solely based on the demeanor of the subject like sweating, pulse rate etc. So taking analogy from *Jones* this evidence may also be admitted.

Thus it may be stated that compelled psychiatric examinations and Forensic Psychological Tests are analogous situations. In these cases, courts have impliedly applied communication based view of testimony and have held that compelled psychiatric tests are not violative of right against self-incrimination. It may be stated that the dictums that are applicable in the case of psychiatric examinations, in the case of insanity pleas, demeanor based psychiatric examinations etc. may be applied in the case of Forensic Psychological Tests also. In psychological tests, the rationale justifying the application of the privilege that, forcing the state to shoulder its burden without the defendants help is inapplicable. In general, it may be stated that in psychological tests co-operation of the subject is important and mental state of the accused is the most crucial factor also. Hence it may be stated that in the case of psychiatric or psychological examination, the treatment of those evidences must be different from that of other physical tests. Therefore, when the self-incrimination question is posed, the test should be communication based view than substantive view. Same criteria must be applied with respect to Forensic Psychological Tests also.

## 5.4 Encrypted Data and Passwords

The issues relating to encrypted data, finger print scanner and passwords may be considered as analogous to Forensic Psychological Tests. Main allegation is that the disclosure of pattern, pass word, decrypted data etc., would actually amount to disclosure of contents of mind. Hence it is alleged that, though they are physical evidence they may be considered as testimonial in nature. The issues with respect to Forensic Psychological Tests are also the same. In these cases also, physical evidence like voice samples, brain images, physical parameters like pulse rate, heart beat rate etc. are used to obtain information about the contents of mind. In this contest, the case laws and scholarly articles relating to encrypted data etc. are considered as relevant. There are only few case laws dealing with this issue.

The attitude of judiciary towards compelled decryption is not consistent.[104] In the case of pass words, the attitude of judiciary is that compelling to produce pass words would attract the privilege.[105] However, regarding fingerprint lock, Virgina District court in *Virgina* v. *Baust*,[106]held that a person may be compelled to produce his finger print to access his phone and it will not violate right against self-incrimination. Thus the position is that in the case of finger prints, there won't be violation of the privilege even if there is compelled production of it.[107]

In this case of finger print, though it is physical evidence, it reveals incriminating mental content of the subject. It is not used as a method of identification but is used to safeguard private information. The dictum with respect to finger prints may be equally applied in the case of voice samples in LVA. Just like finger prints, in the case of encrypted data, the purpose of voice samples is not mere

104 *In re Boucher*, 2007 WL 4246473 (Nov. 29, 2009), available at http://www.volokh.com/files/Boucher.pdf (accessed on 01/12/2017), the court ordered the defendant to provide the Government with unencrypted version of the drive. In *United States* v. *Fricosu*, 841 F. Supp. 2d 1232 (D. Colo. 2012), the court applied forgone conclusion theory and held that providing encrypted contents would not violate Fifth Amendment right. But in a case with similar facts *United States* v. *Doe*, 670 F.3d 1335 (11th Cir. 2012), the court took a contrary view. See, J. Riley Atwood, "The Encryption Problem, Why the Courts and Technology are Creating a Mess for Law Enforcement," Vol. (XXXIV), Saint Louis University Public Law Review, 2015, pp.407-434 at pp.417-422. Scott Brady, "Keeping Secrets: A Constitutional Examination of Encryption Regulation in the United States and India," Vol. 22(2), Indiana International Comparative Law Review, 2012, pp. 317-346 at p.327. See also Andrew J. Ungberg, "Protecting Privacy Through a Responsible Decryption Policy," Vol. 22(2), Harvard Journal of Law and Technology, 2009, pp.537-558, at p.542.

105. In *re Grand Jury Subponea Duces Tecum*, 670 F.3d 1335 (11thCir. 2012), the court held that the compulsion to produce pass word would violate self-incrimination clause unless Government shows that, it already knows what exactly is there in the drive. See also, Dan Terzian, "The Fifth Amendment, Encryption, and the Forgotten State Interest," Vol.61, UCLA Law Review Discourse, 2014, pp.298 -312, available at http://georgetown lawjounal.org/files/ 2016/ 03/terzian-encryption-5th-amendment.pdf (accessed on 16/05/2016). Goldman "Biometric Passwords and the Privilege Against Self Incrimination," Vol.33, Cardozo Arts and Entertainment, 2015, pp.211-236 at p.216.

106. See, *Virginia* v. *Baust*, No. CR14-1439, 2014 WL 6709960, at 3 (Va. Cir. Ct. Oct.28, 2014), available at https://consumermediallc.files.wordpress.com/2014/11/245515028-fingerprint-unlock-ruling.pdf (accessed on 26/10/2017). See also. "Camille Stewart, Recent Virginia Case Carries Major Implications for Fingerprint Pass Codes and Self-Incrimination," Posted in Cyber Law, Cyber Security , Privacy, May 11, 2015, available at https:// thedigitalcounselor.com/2015/05/11/recent-virginia-case-carries-major-implications-for-fingerprint-passcodes-and-self-incrimination/ (accessed on 02/04/2016).

107. Dan Terzian, "The Micro-Hornbook on the Fifth Amendment and Encryption," Vol.104, The Georgetown Law Journal, 2016, pp.168-174, at p.169, available at http://georgetownlawjour nal.org/files/2016/03/terzian-encryption-5th-amendment.pdf (accessed on 16/05/2016).

identification. It is to analyze, the psychological and cognitive state of the person. Same is the position with respect to other Forensic Psychological Tests like Polygraph and BEOS. In both Polygraph and BEOS, only physical evidence is retrieved. This may indirectly link to matters pertaining to state of mind as in the case of finger print of encrypted data. Hence applying the dictum in *Virgina* v. *Baust*,[108] it may be stated that all these tests may be considered as legal and not violative of the privilege.

Moreover the analysis of case laws relating to encrypted data reveals that the judicial pronouncements are based on act of production doctrine and foregone conclusion theory.[109] As issues relating to Forensic Psychological Tests are also analogous to encrypted data, pass word etc., the act of production doctrine and foregone conclusion theory may be equally applicable with respect to Forensic psychological Tests.

It is important to note that, as per, per Information Technology Act 2008, compelling a person to provide decrypted information is legal and not is violative of right against self-incrimination.[110] Hence, legislation governing Forensic Psychological Tests may be enacted with essential safeguards to protect the rights of the affected persons.

108. *Virginia* v. *Baust*, *supra* n. 106.
109. *In re Boucher*, *supra* n. 104, the court ordered the defendant to provide the Government with unencrypted version of the drive. In *United States* v. *Fricosu*, 841 F. Supp. 2d 1232, 1232 (D. Colo. 2012), the court applied forgone conclusion theory and held that providing encrypted contents would not violate Fifth Amendment right. But in a case with similar facts *United States* v. *Doe*, 670 F.3d 1335 (11th Cir. 2012), the court took a contrary view and did not apply forgone conclusion theory. See, J. Riley Atwood, *supra* n. 104.
110. As per s.69 of The Information Technology Act, 2000, deals with the power of Government, to issue directions for interception, monitoring or decryption of any information through computer source. If the subscribers communication is intercepted, he is called upon to extent all facilities and technical assistance to decrypt the information, the failure of which would visit him with imprisonment up to 7 years.

## 5.5 Forensic Psychological Tests and Right Against Self Incrimination

Now it may be analyzed whether involuntary administration of Forensic Psychological Tests violate right against self-incrimination in the light of communication based view of testimony.

### *5.5.1 Polygraph and Right Against Self Incrimination*

For an evidence to be testimonial, the first condition to be satisfied is that there must be communication. The communication must stem from an intentional act, on the suspect's part that discloses information about his mental state. But in the case of Polygraph Test, though the physiological data which is elicited discloses information about the subject's mental state, it cannot be considered as intentional. These measures are only simple automatic functions of human body which do not require or follows a conscious action of the will.[111] Hence there is no intentional act on the part of the subject.[112] Thus, there is no communication of information in the case of Polygraph Test. Regarding the 'yes' or 'no' answers the juristic opinion[113] is that, these words do not by themselves express any idea. Hence these words not be testimony in ordinary sense of term and therefore should not be excluded.

Thus it may be stated that Polygraph Test evidence is not testimonial in nature. Moreover regarding the second test, the test do not create any novel evidence and only produces evidence which is already in the knowledge of the investigating officer and gives only a lead in the investigation. Therefore both the tests are not satisfied in the case of polygraph. Hence it may be stated that involuntary administration of Polygraph Test do not violate right against self-incrimination.

111 . Nita Farhany, *supra* n. 1.

112. *ibid*. The author states that though one may exercise temporary control over automatic functions like breathing or heart rate, but the automatic functioning of these bodily processes will soon take over.

113. *supra* n. 98 at p.287. Inbau states that since the physiological reactions obtained by this technique, and even the "yes" and "no" answers, are not used testimonially, *i.e.*, "as statements of facts to show their truth," it may well be argued that there should be no legal obstacle to a compulsory examination of this nature.

### *5.5.2 Neuro Imaging Tests and Right Against Self Incrimination*

When Neuro imaging techniques are analyzed, it could be seen that, FMRI Test measures brain activity by observing changes in the blood flow. This test actually detects which part of brain respond to particular stimuli. Thus, the test only gives a lead, whether the person hides something or not. This test requires the subject's head to remain still for several hours and even a small physical movement could impede the scanners ability to obtain data on blood flow patterns.[114] It is also important to note that the FMRI Test call for voluntary participation from the subject who may be willing to answer a question or otherwise register a response to specific stimuli.[115]Thus it may be stated that there is no question of absence of consent and cooperation in the case of FMRI test.

The Brain Fingerprinting Test, only determines whether a specific P300-MERMER brain response is emitted by the brain.[116] In this test, words, pictures etc. which are relevant to crime under investigation are presented on the computer screen, in a series with other irrelevant words or pictures. The suspect's brain wave response is measured non-invasively by using a head set with EEG sensors.[117] The object of the test is to measure whether crime related information is stored in the brain of the subject. It is stated by the proponents of the test that only a perpetrator would have details of the crime stored in the brain and innocent suspect would be lacking it. The test does not give details as to how that information is obtained.

As far as BEOS Test is concerned, the test determines whether a person has experiential knowledge with respect to a particular probe. This test actually records the electrical activity of the brain using multiple electrodes affixed on the scalp of the subject who is submitting to this test.[118] It is considered as computerized assessment

114. See, Randy L. Buckner and Jessica M. Logan, "Functional Neuro Imaging Methods: PET and FMRI," in Robert Cabeza and Alan Kingstone eds. ,*Handbook of Functional Neuroimaging of Cognition 28,* 30 (2001) as cited in *ibid*.
115. Scott M. Hayes *et. al.*, "An FMRI Study of Episodic Memory: Retrieval of Object, Spatial, and Temporal Information," 118 Behav. Neuroscience 885, 886 (2004) as cited in *ibid.*
116. Brain Wave Science, USA, "Brain Finger Printing: A New Revolutionary Technology," Vol.1, International Research Journal on Police Science, July 2015, pp. 13-20 at p.15.
117. *ibid*.
118. TIFAC (Technology Information Forecasting and Assessment Council) – DFS (Directorate of Forensic Science) Study Research Project, *Normative Data For Brain Electrical Activation*

of electrical activity in the brain which indicates whether process of remembrance takes place in the person. It does not actually reveal the content of the experience. It is also important to note that the test do not require any response from the subject and only internal processing within the subject takes place in this test. There is no communication involved. In short, it may be stated that BEOS only measures the electrical activity, when electrical activity takes place in the brain of a person. Thus it may be stated that the test result do not amount to personal testimony.

In all these tests, only physiological parameters are recorded. For instance, brain image in the case of FMRI and electrical activity of the brain in BEOS and Brain Fingerprinting. In the case of BEOS and Brain Fingerprinting, also only if the subject cooperates, the test could be done. In the case of Brain Fingerprinting Test, it is stated that the subject is required to press a button, to ensure cooperation. In the case of BEOS test, it is stated that the system won't present probes if the subject is inattentive/ not interested.[119] At this juncture, it is important to note that Nita Farhany, in her article "Incriminating Thoughts," had stated that the tests which divulge emotional response of the subject which reveals an individual's personal experience with the stimuli which are analogous to BEOS Test may not face the challenge of self-incrimination privilege.[120] Moreover, in all these tests cooperation of the subject is inevitable. Therefore it may be stated that there is no violation of right against self-incrimination in all these tests.

*Profiling*, Department of Science and Technology, Government of India, New Delhi, March 2006-2008, p.2.

119. So there is no violation of right to privacy.

120. Nita Farhany, *supra* n.1 at p.376. In this article the author was stating about an Israel-based company, WeCU Technologies. While the airport passenger goes through his normal check-in process, images, words, or symbols are displayed to him. At the same time a concealed remote detector would read his emotional response. It is claimed that that this emotional response is highly predictive of a passenger's potential security threat. Other scientific studies also confirm that individuals would react to faces or stimuli which are of personal relevance. This means that such an emotional response reveals an individual's personal experience with the stimuli than a more generalized recognition response. Personally relevant stimuli are encoded by a larger proportion of neurons than stimuli that are less relevant, most likely. Because personally relevant items are linked to a larger variety of experiences and memories of these experiences. WeCU or similar products could at least theoretically detect whether a passenger had personal experience with a known terrorist or other stimulus, rather than more generalized awareness of that target through media exposure. In fact this test is analogous to BEOS Test.

When all the tests are analyzed in the light of new test for testimony, it could be seen that in none of the tests, there is an intentional act on the part of the subject. In all the cases when stimuli is presented, electrical activity or brain images or P300-MERMER wave is elicited which are not intentional act on the part of the subject as in the case of Polygraph. So these tests cannot be considered as personal testimony. Moreover all the information which is extracted with the help of these tests is already in the knowledge of the investigating officers. Thus it may be stated that foregone conclusion theory is applicable in the case of these tests and they won't be considered as testimonial. Thus it may be stated that investigative use of none of Neuro Imaging tests are not violative of right against self-incrimination.

### *5.5.3 Narco Analysis and Right Against Self Incrimination*

In *Selvi*, the apex court had held that compulsory administration of Narco Analysis technique amounts to testimonial compulsion and thereby triggers protection under Article 20(3).[121] The court stated that when a subject is encouraged to speak in a drug induced state, there is no reason to see why such act should be treated differently from verbal answers during ordinary interrogation.[122] The court held that as per Article 20(3), the individual is protected to make a choice between speaking and remaining silent, irrespective of whether subsequent testimony proves to be inculpatory or exculpatory. The court also held that the results of the test bear a testimonial character and hence could not be categorized as material evidence.

Prior to *Selvi*, most of the High Courts had considered the issue whether subjecting a person to Narco Analysis Test in investigation stage amounts violation of right against self-incrimination. Mostly courts have answered this question in the negative and have stated several arguments to support the constitutionality of investigative use of Narco Analysis. In *Rama Chandra Reddy* v. *The State of Maharashtra,*[123] the main issue considered by the court was whether involuntary administration of Polygraph, BEOS and Narco Analysis Tests violates right against self-incrimination. In this case, the court considered whether the results of the tests,

121 . *Selvi* v. *State of Karnataka*, ( 2010) 7 S.C.C. 263 at p.339.
122. *ibid.*
123. 2004, available at https://indiankanoon.org/doc/1943547/ (accessed on 03/11/2011).

conducted willingly or not, after they are administered may be considered as statements made by the accused or witnesses. Whether they can be considered as testimony of these persons. After considering the Constitutional Assembly Debates, the court stated that, what was intended by the framers of the Constitution was to give constitutional protection from testimonial compulsion. Therefore, the main issue considered by the court was whether a person is compelled to be a witness against himself by compulsorily administering the tests to him. The court opined that protection is from using the statement made by the accused against himself.[124]

The court analyzed the meaning of the term statement and the difference between 'statement' and 'testimony'. Testimony was defined by the court as evidence given by a competent witness under oath or affirmation in the presence of a tribunal. Regarding statement, the court analyzed various dictionary meanings. The court summed up that, statement means something that is stated. It is the act of stating, reciting or presenting verbally or on paper. This means that, it includes both oral and written statements, though it need not in every element of word be communication to someone. It may even include non-verbal conduct of a person if it is intended by him as an assertion and to be a substitute for oral or written verbal expression. The court also quoted with approval, *Tahasildar Singh* v. *State of UP,*[125] wherein, it was laid down that statement does not include what is not said. It may be oral or in writing. Hence to constitute violation of Article 20(3), what is required to be to be made by the accused under compulsion is making a statement. The court held that in the case of BEOS and Polygraph Tests, no statements come out of the involuntary administration of the tests. The conclusions are not proved in any manner to be even likely to be incriminating to the maker of it. Hence expert can depose in relation to these tests in courts. Therefore these two tests do not violate Article 20(3). Regarding Narco Analysis, the court conceded that what was revealed by the subject during the test is undoubtedly a statement. The question was whether such statement could be forcibly be taken from the accused by requiring him to undergo Narco Analysis Test against his will. The court held that the statement would attract the bar

124. Regarding Polygraph and BEOS, court held that the test results do not amount to statement.
125. A.I.R 1959 S.C.1012.

under Article 20(3) only if it is inculpating or incriminatory of the person making it. Whether the statement is inculpatory or not will be known only after the administration of the tests and not before administering it. Hence court held that there is no reason to prevent the administration of the test for investigative purpose. Court also held that enough statutory protection exist to prevent inclusion of incriminatory statements arising from the tests, if the investigative agencies try to introduce the statement as evidence. Those issues could be considered at the trial stage. Hence court held that involuntary administration of Narco Analysis Test for investigative purpose is not violative of Article 20(3).

Same view was taken by Madras High Court, in *Dinesh Dalmia* v. *State*.[126] The Court held that the person may be taken to the laboratory forcibly, but the revelations during the tests are voluntary. Court also held that the observation made by *Nandini Satpathy* [127] regarding the meaning of compelled testimony is not applicable in the case of scientific tests which give a lead to the investigating officers.[128]

In *Santokben Jadeja* v. *State of Gujarat*, [129] the main issue considered by the court was whether administration of the drug to the accused against his consent or wishes during Narco Analysis Test amounts to compulsion. It was argued that, as the administration of the drug causes injury, though slight in nature, it would amount to compulsion attracting Article 20(3). But the court held that, though injecting the drug may technically amount to hurt under Section 319 of Indian Penal Code, it is lawful as per Section 53(1) of The Code of Criminal Procedure 1973, wherein use of necessary force is permissible. The Court also held that whether the statement or the information obtained as a result of Narco Analyses Test is exculpatory or inculpatory could be decided only after test is conducted. In the investigation stage it is premature to state about the nature of the statement. Hence administration of Narco Analysis Test during investigation is not violative of Article 20(3). Regarding the

126 . 2006 Cri. L. J. 2401 (Mad).
127. *Nandini Satpathy* v. *PL Dani*, A.I.R.1975 S.C.1025.
128. Same view was taken by High Court in *Rojo George* v. *Deputy Supdt of Police*, (2006) 2 K.L.T.197.
129. 2008 Cr. L. J. 68 ( Guj).

question of consent for administering Narco Analysis Test, the court held that conducting the tests for the purpose of investigation is part of investigation and for conducting investigation consent of the accused is not required. The Court held that there is no provision in the Code of Criminal Procedure which mandates taking of consent for conducting scientific tests. So the court held that consent of the accused is not required for conducting Narco Analysis Test.

In *State of Andhra Pradesh v. Smt. Inapuri Padma and Ors,* [130] the court held that if the persons are willing to undergo the test, court order is not required. However if they are not willing, the court order is required and consent of the persons are not required for conducting the tests. Court also held that the issue of testimonial compulsion would not arise in this situation.[131]

An analysis of the various high court decisions made prior to *Selvi* reveals that conducting Narco Analyses Test is only part of process of collection of evidence. Therefore even without consent of the subject the test may be conducted. Though courts have agreed that results obtained as a result of Narco Analysis test may be considered as statement, the issue whether Narco Analysis Test violates right against self-incrimination could be determined only after the test is conducted. Because only if the information obtained is inculpatory in nature, it would be violative of Art. 20(3).

The dictums of these High court decisions seem to be in consonance with the prior decisions of Supreme Court like *Kathikalu, Nandini*, etc. On the reading of *Selvi,*[132] *Kathikalu,* and *Nandini,* it seems that only if statements are incriminatory or are confessions, it would amount to violation of Article 20(3).That would be known only after the Narco Analysis Test is conducted and not prior to it. A test cannot be banned solely on the ground that it may give an incriminatory result.

130 . *State of Andhra Pradesh* v. *Smt. Inapuri Padma and Ors,* 2008 Cri.L.J.3992.

131. *ibid.*

132. In *Selvi,* court had referred to *Nandini* and had stated that Art. 20 (3) strikes at confessions and self-incrimination but leaves untouched other relevant facts. The confession constitutes those answers which in themselves support a conviction. The answers which have a reasonable tendency which strongly point out to the guilt of the accused are incriminatory. Confessions made to police officer are inadmissible in evidence. See, Ss. 24-27 Indian Evidence Act, 1872.

This proposition also gets support of juristic opinions.[133] In an article by Charles Fried, the author states that law of self-incrimination is "an example of contingent symbolic recognition of an area of privacy "as an expression of respect for personal integrity". [134] He stated that in the case of right against self-incrimination, we are in fact dealing with special sort of information which is particularly important for the individual to be able to control. Confession as to the commission of a crime is considered as this special sort of information, because it involves something more than mere recital of the facts of the crime.[135] Gerstein in his article states that, confession actually involves admission of a crime, the self-condemnation.[136] He argues that these are regarded as matters between man and God/ Conscience, of which a man ought to have absolute control over making such revelations.[137] He states that this seems to him as the most important part of what lies behind right against self-incrimination.[138] In his view, the real concern is not the disclosure of the facts of a crime but the *mea culpa*, the public admission of the private judgment of self-condemnation.[139] It seems that it is this self-knowledge that is revealed to the public in self-incrimination. It actually amounts to laying bare of the innermost recess of the conscience. This is actually with respect to this specific sort of private information over which every individual should have absolute control. He ought to be able to keep his *mea culpa* to God or those persons to whom he is very close and intimate.[140]

However, Gerstein agrees that this may not be the case with all the crimes and that this argument mostly apply in cases involving violations in the core areas of criminal law which involves serious injury to the interests of others and therefore involves moral turpitude and considered so by the person who is involved in the

133. Charles Fried, "Privacy," Vol. 77(3), The Yale Law Journal, January 1968, pp.475-493 at p.478.
134. *ibid.*
135. Robert .S. Gerstein, "Privacy and Self Incrimination," Vol.80 (2), Ethics, January 1970, pp.87- 101 at p.88.
136. *id.* at p. 91.
137. *ibid.*
138. *ibid.*
139. *ibid.*
140. *ibid.*

crime.[141] It protects only some form of speech or writings by the person involved.[142] Such other forms of personal evidence like finger prints, blood tests etc. could not possibly come within the ambit of the policy of privacy as part of self-incrimination. Thus, right to make a choice to speak or not to speak as an aspect of self-incrimination involves only the cases of communication and no further.[143] Gerstien states that this kind of interest is present only in the cases in which there is full confession or something close to it.[144] It would not have direct relevance in cases in which a man's testimony is used against him to the extent of providing clues to the police leading to the collection of evidence against him.[145] He pointed out that, there is difference between questioning which would elicit a full or partial confession and those questioning which would only give clues.[146] He also stated that in practice the line demarcating these two is very thin.[147] Thus it may be stated that, right to silence as an aspect of right to personal liberty will be curtailed only if the person makes communication of such a nature as may amount to full confession or close to it. If the statement only gives a clue to the investigation, it won't amount to violation of right to silence as an aspect of personal liberty.

In the case of non-invasive Forensic Psychological Tests, it does not involve statements or confessions. Only in Narco Analysis, the person makes statements. But whether that statement provides only a clue or confession is to be based on facts and circumstances of each case. Hence in the case of all tests other than Narco Analysis, there is no violation of right to make choice between to speak or not to speak. In the case of Narco Analysis, it cannot be considered as *per se* violative of this right and whether there is infringement or not depends on the facts and circumstances of each case.

Moreover, the statements made under Narco Analysis' Test cannot be considered as Section 161[148] statements. Though the tests are conducted during

141. *ibid.*
142. *id.* at p.95
143. *id.* at p.96.
144. *ibid.*
145. *ibid.*
146. *ibid.*
147. *ibid.*
148. The Criminal Procedure Code, 1973.

investigation, it is not conducted by the police. It is conducted by experts. Hence the test results cannot be considered as a statement under Section 161(2) of The Criminal Procedure Code, 1973. A perusal of judicial pronouncements reveals that results of Forensic Psychological Tests cannot be considered as statement within the meaning of Section 161(2).[149] In all these cases, just because the investigating officers are not police officers, Section 161(2) was held as inapplicable. In the case of Forensic Psychological Tests, though the experts may come under home department, they cannot be considered as police officers. Thus it may be stated that right to silence under Section 161(2) is not applicable with respect to Forensic Psychological Tests.

At this juncture, it is also important to note other significant decisions of apex court. For instance in *Kalavathi* v. *State of H.P*[150], Supreme Court had held that Article 20(3) does not apply at all, to a case where the confession is made by accused without any inducement, threat or promise. In *Yousufalli Esmail Nagree* v. *State of Maharashtra,*[151] the apex court had held that if the accused talks without any instigation, he cannot claim protection under Article 20 (3). In Narco Analysis the subjects are giving information voluntarily, as the drug would remove all sorts of inhibition.

Thus investigative use of Narco Analysis Test will not amount to violation of Art 20(3). However, it is important to note that as this test involve anesthetic procedure, consent of the subject is very much important. If consent is taken, then it would extent to the answering of questions in uninhibited state of mind induced by the drug and thereby rendering the making of any statement during the test as completely voluntary and in no way extorted.[152] Reading of the definition of investigation and the powers under Chapter XII of The Code of Criminal Procedure, would suggest that Narco Analysis Test may be conducted as part of investigation

149. *Bhanabhai Khalpabhai* v. *Collector of Customs,* (1994) SUPP (2) S.C.C. 143.
150. A.I.R. 1953 S.C. 131.
151. A.I.R. 1968 S.C.147.
152. Surendra Kumar, "New Scientific Tests: With Special Reference to DNA, Finger Printing and Narco Analysis," (PhD Thesis, University of Lucknow, March 2015) at pp. 250,257,261, available at http://shodhganga. inflibnet.ac.in:8080 /jspui/bitstream /10603/54158 /1/surendra% 20thesis%2013-03-2015%20final.pdf (accessed on 17/04/2016).

irrespective of the consent of the accused. However it may be stated that consent must be made mandatory in the case of Narco Analysis test.

### *5.5.4 Layered Voice Analysis and Right Against Self Incrimination*

In *Ritesh Sinha* v. *State of UP,*[153] the apex court dealt with the issue of compelling accused to give voice samples. In that case, there was difference of opinion between the judges regarding the issue, in the absence of statutory provision, whether a magistrate can authorize the investigating agency to record the voice samples of the person accused of an offence. But the judges were unanimous as to the point that, by compelling the accused to give voice samples during an investigation, there is no violation of Article 20(3). So it may be stated that as per the dictum in *Ritesh*, compelling a person to submit to LVA test will not offend Article 20(3). In LVA Test, the subject answers the questions put forward by the examiner. The brain activity which is evoked, with respect to each layer or segment of layer of voice is analysed and determined as stress, confusing, doubtful etc. The brain activity which is evoked is not an intentional act and only gives lead to the investigating officer. Thus it may be stated in the case of LVA Test, there is no communication and only stimulation. Thus it may be stated that, investigative use of LVA Test, may not be considered as violative of right against self-incrimination.

If the voice is recorded, without the knowledge of the examinee, then also the issue of violation of self-incrimination may come. Regarding this issue, the cases pertaining to admissibility of tape recorded conversation may be of much relevance. For instance, in *Yusufalli Esmail Nagree,*[154] one of the issues was whether use of the statement made by the accused in the tape recorded conversation without his knowledge violated his right against self-incrimination. In this case, it was argued that he made the statement because of the active deception practiced by the police.

153. (2013) 2 S.C.C.357.

154. A.I.R. 1968 S.C. 147; *N.C.T of Delhi* v. *Navjotsandhu @ Afsan Guru,* A.I.R. 2005 S.C. 3820; *R.M Malkani* v. *State of Maharashtra,* A.I.R. 1973 S.C. 157. In *Sri Ramma Reddy* v. *Sri. V.V. Giri,* A.I.R. 1971 S.C. 1162, the Supreme Court held that the tape recorded statement become admissible if ( a) the conversation is relevant to the matter in issue,( b) The voice is clearly identified, ( c) The accuracy of the tape recorded conversation is proved by eliminating the possibility of erasing tape recording. A contemporaneous tape recording of a relevant conversation is a relevant fact and is admissible under s. 8 of Indian Evidence Act and is *Res Gestae*.

Hence he was compelled to be a witness against himself. But the court held in negative and stated that he was not compelled to speak against himself. The conversation was voluntary and there was no element of duress, compulsion or coercion. The statements were not extracted from him in an oppressive manner or forcefully or against his wishes. Hence there is no violation of Article 20(3). These reasoning hold equally good in the case of LVA Test, which may be recorded without the knowledge of the subject. Hence even if the voice is recorded without the knowledge of the subject, it cannot amount to violation of right against self-incrimination.

At this juncture, it is important to analyse an article by Nita Farahany. She stated that the tests of automatic functioning like sweating, heartbeat, speech pattern etc. would be treated just like identity based functioning. The subject could choose either to submit or refuse to submit to the testing.[155] The testing does not create a choice between communicating false hood, risk of contempt or incriminating oneself.[156] These tests only measure the subject's existing emotional feelings towards the prominent stimuli or his behavioral predispositions more generally.[157] These tests actually capture existing evidence rather than creating new evidence.[158] The tests do not implicate testimonial capacities of the subject. But he is only treated as source of real evidence. It is important to note that the tests like Polygraph, BEOS and LVA Tests are actually tests of automatic functioning. Hence the arguments made by Farahany are applicable with respect to all these tests. Thus it may be stated that these tests may not be considered as violative of Article 20(3).It is also important to note that in *US* v. *Dionisioto*[159] the court held that suspects could be compelled to provide voice samples "solely to measure the physical properties of the speakers voice and not for their communicative content. In that case, there is no violation of right against self-incrimination.

155. Nita farhany, *supra* n. 1.
156. *ibid.*
157. *ibid.*
158. *ibid.*
159. 410 U.S. 1, 7 (1973). Same view was taken in *Johnsons* v. *Commonwealth*, 115 Pa. 369 (1887). In that case, the accused was asked to repeat very words repeated by the person who committed the crime. This was done to enable the witness to identify the accused. Court held it is not violative of the privilege.

In the case of LVA Test also, though the accused is required to speak about the crime, those words are not at all considered relevant in their substantive content as in *Muniz* case.[160] It is also important to note that the recent trend of judiciary is to treat physical measures which may evoke testimonial responses as not violative of self-incrimination clause. For instance, regarding Fingerprint lock, Virgina District Court *in Virgina* v. *Baust*,[161] it was held that compelling a person to produce his finger print to access his phone will not violate right against self-incrimination. In fact the dictum with respect to finger prints is equally applicable in the case of voice samples in LVA. Just like finger prints in the case of encrypted data, the purpose of voice samples are not mere identification. It is to analyze the psychological and cognitive state of the person. Thus it may be stated that compelling a person to undergo LVA Test, is not violative of Article 20(3). Same arguments equally apply in the case of Psychological Stress Evaluator. Thus it is stated that investigating use of LVA, and PSE are not violative of Article 20(3).

## 5.6 Conclusion

Of the two competing constructions for the term testimonial in self-incrimination clause viz., Substantive based view and communication based view, it is the communication based view which better integrates the case laws and also stands up more persuasively the metaphysical scrutiny. If the substantive based view of interpretation is adopted many case laws could not be explained. It is also inadequate to successfully protect the interests of accused and also to accommodate many new scientific innovations. It may also result in inconsistent verdicts. Hence in the present era, wherein new scientific developments in forensic psychology and neuro imaging tests are progressing, interpretation of right against self incrimination must be based on communication based view of testimony, so that both the interests

160. 496 U.S. 582 (1990). In *Muniz*, the Court held that the correct way to ask the self-incrimination question is to ask whether the inference used arose from a compelled testimonial act or from physical evidence. Because Muniz responded with a substantive reply, and the substance of that reply gave the inference of his mental state, the Court found it to be a compelled testimonial response. In the case of LVA Test the substance of the reply is not at all taken into consideration. Each strata of voice is analyzed and based on frequency and vibration etc. the psychological content is analyzed. It is the brain activity which is measured in the case of LVA Test. Therefore the dictum in *Muniz* case could not be applied in the case of LVA Test.

161 . See, *Virginia* v. *Baust*, *supra* n. 106.

of the accused and benefits of scientific techniques could be effectively accommodated in the criminal justice administration.

As per this interpretation, the salient variable is presence or absence of communication. Even verbal answers are not precluded, if it is merely mechanical. Similarly, observation only psychiatric tests are also not proscribed. Just because mental states are revealed by the evidence, it will not *ispo facto* render the evidence testimonial. The test must be whether the scientific test requires the subject himself to reveal his mental states. Accordingly, to constitute violation of right against self-incrimination, the tests suggested are:

(i) Whether the evidence is testimonial in nature? And

(ii) Even if it is testimonial**,** whether it creates evidence either novel or unknown, that the investigators could not otherwise lawfully obtain?

If this definition is taken, then investigative use of Forensic Psychological Tests like Polygraph, BEOS, Layered Voice Analysis and Narco Analysis cannot be considered as violative of Article 20(3).Thus, if communication based view is accepted whether a Forensic Psychological Test is constitutional or not, will be contextual and technology specific question. However regarding Narco Analysis it may be stated that, as it is an invasive procedure the test may be done only with consent.

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# Chapter - VI

# FORENSIC PSYCHOLOGICAL EVIDENCE IN COURT ROOM: COMPARATIVE PERSPECTIVE

This chapter mainly analyses whether evidence based on Forensic Psychological Tests satisfies legal standards as to admissibility of scientific evidence ensuring fair trial. The analysis is made in the light of judicial decisions and legal literature. The chapter examines how judiciary in common law countries interprets Forensic Psychological Evidence using these legal standards and compares with the position in India.

## 6.1 Concept of Fair Trial and the Rules Governing Admissibility of Evidence

Right to fair trial of the accused is a bundle of legally enforceable rights guaranteed by the state, to its citizens. It is assured in most of the international human rights instruments[1] and admits no exception.[2] This right is also recognized in the Constitution of many common law countries.[3]

1 International Covenant on Civil and Political Rights 1966, Art. 14(1), European Convention for the Protection of Human Rights and Fundamental Freedoms 1950, Art. 6(1), American Convention on Human Rights 1969, Art. 8(1); Statute of International Criminal Tribunal for Rwanda 1994, Art. 20(2); and Statute of International Criminal Tribunal for Former Yugoslavia 1993, Art.21(2). Art. 10(1) Universal Declaration for Human Rights, 1948, states that everyone is entitled in full equality to a fair and public hearing by an independent and impartial tribunal in the determination of his rights and obligations and of any criminal charge against him. Art. 11(1) states that "everyone charged with a penal offence has the right to be presumed innocent until proved guilty according to law in public trial at which he has had all the guarantees necessary for his defense." Article 14 of The International Convention on Civil and Political Rights, 1966, which guarantees right to fair trial encompasses in itself right to equality before courts , fair and public hearing by competent independent and impartial tribunal established by law, presumption of innocence. The same article further stipulates that in the determination of criminal charge against him, everyone shall be entitled to minimum guarantees in full equality which includes, right to be informed promptly about the charge against him, adequate time and facilities for the preparation of his defence and to communicate with counsel of his own choosing; right to be tried without undue delay; right to be tried in his presence, and to defend himself in person or through legal assistance of his own choosing; right not to be compelled to testify against himself or to confess guilt. Article 6 of The European Convention on Human Rights, 1950, stipulates that, in the determination of any criminal charge against him, everyone is entitled to a fair and public hearing within a reasonable time by an independent and impartial tribunal established by law. It further guarantees right to presumption of innocence. Moreover a person charged with a criminal offence is guaranteed with certain minimum rights like informed promptly about nature and cause of accusation, to have adequate time and facilities for the preparation of his defence; to

As far as Indian legal system is concerned, the obligation of fair trial is found expression in our constitutional law and also in our criminal procedural laws. Indian Judiciary have always ensured that primary object of criminal procedure is to ensure right to fair trial of the accused in catena of cases. In *Zahira Habibullah Sheikh and Ors* v. *State of Gujarat and Ors,*[4] the apex court held that each party to the criminal proceedings have right to be dealt fairly. Denial of fair trial would amount to injustice not only to the accused but also to the victim and the society. In *Selvi* v. *State of Karnataka,*[5] the apex court held that involuntary administration of some of the Forensic Psychological Tests[6] violate right to fair trial on the grounds of; access to legal advice,[7] right to defence,[8] affects burden of proof and proof beyond reasonable doubt[9], prejudicial influence on the judge,[10] disparity in procedural safeguards[11] and encouraging frivolous litigation.[12]

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defend himself in person or through legal assistance of his own choosing and right to compulsory process.

2. *Selvi* v. *State of Karnataka*, (2010) 7 S.C.C. 263, 379.

3. S.11 of The Canadian Charter of Rights and Freedoms 1982, protects a person's basic legal rights during criminal prosecution.US constitution also provides that in all criminal prosecutions, the accused shall have right to speedy and public trial; trial by impartial jury, right to be informed of the nature and cause of accusation; right to compulsory process for obtaining witness in his favor; right to confront the witness and also to have right to legal assistance of the counsel.( See, Sixth Amendment, Fourteenth Amendment and Fifth Amendment of the Constitution.)New Zealand's Bill of Rights 1990, also guarantees right to fair trial. Section 25 of the New Zealand Constitution outlines the right to a public hearing and a fair trial in a court. Though Australian Constitution does not expressly provide that criminal trial must be fair, but it protects many attributes of a fair trial. Chapter III of the Constitution and its judicial interpretations provide a range of assurances that a person charged with a criminal offence under federal law is tried by a competent, independent and impartial tribunal. Ss. 24-25 of Human Rights and Responsibilities Act, 2006 and Ss. 21-22 of Human Rights Act, 2006 also protect right to fair trial in criminal proceedings. In UK, Fair trial rights are protected by virtue of Human Rights Act, 1998.

4. *Zahira Habibullah Sheikh and Ors.* v. *State of Gujarat and Ors.,* (2004) 4 S.C.C. 158.

5. *Supra* n.2.

6. Court was considering the constitutionality of Polygraph, Brain Electrical Oscillation Signature Profiling Test and Narco Analysis Tests.

7. It was held that access to legal advice would be rendered meaningless as the test subject would have no control over his verbal or physiological responses.

8. This right would be affected as the test results may be used against him, but may not be communicated to him in writing.

9. As the reliability of the Tests is questionable, proof beyond reasonable doubt may not be possible through these Tests.

10. It was held that trial judge would be influenced as he presides evidentiary and trial phases, test results also would result in public pressure which is not in the interest of right to fair trial. It may also result in media trial.

11. As prosecution is allowed to conduct these Tests, similar demand from the accused or witnesses also must be allowed.

12. It was stated that there would be demand for fresh proceedings and conducting of Tests.

Thus, there is no agreement as to the concepts, which come within the broad notion of this right.[13] However, it may be stated that the important facets of right to fair trial are right to be tried by a competent, independent and impartial tribunal established by law, right to fair hearing, right to be informed of the charges, right to be presumed innocent, right against self-incrimination, right to be represented by a lawyer and right to compulsory process. Each fair trial right is crafted in such a manner that every person who come before the court is afforded from the stage of investigation till the final disposition of the case, equal protection without any discrimination on the grounds of caste, creed etc. Thus right to fair trial encompasses the notion that, each individual must be able to make use of his procedural rights irrespective of his individual capabilities.[14] These rights are applicable throughout criminal proceedings right from pretrial stage till post-conviction stage.

Though Fair trial encompasses in itself all rights of the accused from the stage of arrest till execution of sentence, for the purpose of the study, this right is analyzed from evidentiary aspects. Because, one of the main issues regarding Forensic Psychological Tests, is with respect is to its admissibility as evidence in trial. The object of admissibility tests itself, is to interpret and apply the rights of the accused.[15] Evaluation of admission and exclusion of evidence plays an important part in determining how balance has to be struck between the admissibility of evidence and protection of the rights of the accused.[16]

Under common law, admissibility of evidence is determined by set of following questions[17] viz.,

13 . Karolina Kremens**, "**The Protection of the Accused in International Criminal Law According to the Human Rights Law Standard," Vol.1 (2), Wroclaw Review of Law, Administration and Economics, 2011, pp. 26-42 at p.29, available at http://wrlae.prawo.uni.wroc.pl/in dex.php/ wrlae/article/view/15/16 (accessed on 25/09/2017).

14 . Maja Dharuwala, *Fair Trial Manual: Hand Book for Judges and Magistrates*, Common Wealth Human Rights Initiative, New Delhi, (2010), p.1, available at. http://www.humanrig htsinitiative.org/publications/police/fair_trial_manual.pdf (accessed on 21/06/2013).

15 . Professor Danutae Jociene, "Evidence Standards as Part of Fair Trial," (Paper Presented at Seminar on Human Rights and Access to Justice, Split, Croatia, 20-21 October 2016), available at http://www.ejtn.eu/PageFiles/12454/Split%20Seminar%20EJTN%202016%20October.pdf (accessed on 10/12/2017).

16 *ibid*.

17 Chen, Siyuan, "The Future of the Similar Fact Rule in an Indian Evidence Act Jurisdiction: Singapore," Vol.6 (3), National University of Juridical Sciences Law Review, 2013, pp.361-386 at p.365.

(i) Is the evidence logically relevant[18] (ii) Is the evidence subject to the applicable exclusionary rule (iii) Whether the evidence falls within the legal exception to this exclusionary rules, (iv) Even then, whether there is judicial discretion to exclude evidence.

The evidentiary barriers as to admissibility of relevant evidence will be covered in the next chapter. This chapter peruses legal standards ensuring fair trial as to the admissibility of Forensic Psychological evidence in Common Law Countries and compares with the position in India.

## 6.2 Forensic Psychological Tests and Expert Evidence

The procedure of the Forensic Psychological Tests and interpretation of their results involves many complexities. Hence authentic process of expert witnessing on admission of evidence based on these tests is indispensible. Therefore, it is important to analyze the law on expert evidence and also how far the expert opinion could be relied on in the case of admission of Forensic Psychological evidence. There are three important questions as to admissibility of any expert scientific evidence. They are (i) Area of expertise rule, (ii) Expertise rule and (iii) Basis rule.

### *6.2.1 The Area of Expertise Rule*

This rule posits that, for the expert evidence to be admissible, the subject matter must relate to some relevant, sufficiently organised body of knowledge or specialised field to be acceptable as reliable.[19] This means that field of opinion on which the expert opinion is drawn is worthy of recognition by law of evidence. Expert testimony is permitted when the subject matter involved is such that inexperienced persons are unlikely to form correct judgment upon it without such assistance. The question is whether the subject matter is considered in the nature of science which requires a course of previous habit or study in order to obtain

18 At common Law, "Evidence is relevant, if it is logically probative or disprobative of some matter which requires proof; relevant (*ie* logically probative or disprobative) evidence is evidence which makes the matter which requires proof more or less probable." Vinodh Coomaraswamy, S.C., *Report of the Law Reform Committee on Opinion Evidence*, Singapore, 2011, pp.6-8, available at https://www .sal.org.sg/Porta ls/0/PDF%20Files/L aw%20Reform/ 2011- 10%20-%2 0Opinion%20Evidence.pdf ( accessed on 20/12/2017).

19 *R.* v. *Bonython,* [1984] SASR 45, 46.

knowledge of it.[20] The courts of different jurisdictions adopt different standards to determine which branches of knowledge should be accorded evidentiary recognition. This aspect is analysed in detail in later portion of the chapter under various jurisdictions.

### *6.2.2 Expertise Rule: Who is an Expert?*

Once it is established that, the field of particular witness is one worthy of recognition for the purpose of evidence, the next important question is, whether the witness himself is an expert in that field. To be allowed to give expert opinion, he must be shown to have sufficient knowledge and experience in a particular field of recognised expertise so as to entitle him to be held out as an expert who can assist the court. The analysis of judicial decisions in common law jurisdictions[21] and in India[22] show that expert is a person who has specialized in a particular field. He must have high level of skill, knowledge, etc. in that field, which is outside the ken of ordinary layman. Psychologists, who conduct Forensic Psychological Tests in Forensic Science Laboratories in India, have received requisite training and also possess the required minimum qualification, which is post-graduation in psychology.[23] They also possess specialized knowledge which is outside the ken of ordinary layman and hence would come within the ambit of expert under Section 45 of the Indian Evidence Act.

20. *Clark* v. *Ryan*, (1960) 103 C.L.R. 486.
21. For the position in UK, see, *R.* v. *Turner*, [1975] 1 QB. 834; *R.* v. *Silverlock*, [1894] 2 QB 766.For Australian position see, *ibid* and *HG* v. *R.*, [1999] 197 C.L.R. 414. For US position, see, *Smith* v. *Hobart Mfg. Co*, 185 F. Supp. 751 (DC Pa 1960); *Aloe Coal Co*. v. *Clark Equipment Co*, 816 F.2d 110 (3rd Cir. 1987). Detailed discussion is made under each country.
22. In India, Section 45 of Indian Evidence Act, 1872, states that, persons who are specially skilled in foreign law, arts, science, handwriting or finger impressions are called experts. The courts have held that an expert is a person who has made the subject upon which he speaks, a matter of particular study, practise or observation and thereby has a special knowledge of the subject. See *Balakrishna Das* v. *Radha Devi*, A.I.R. 1989 All. 133; and *State of Himachal Pradesh* v. *Jailal*, A.I.R. 1999 S.C. 3318.
23 As per the information obtained by filing application under Right to information Act, 2005.

### *6.2.3 Basis Rule*

The Basis rule postulates that, if an expert is to render assistance for which his evidence is adduced, he must furnish the trier of fact with criteria which would enable him to evaluate the validity of his conclusion.[24]

The Basis rule requires two important conditions.[25] One is that the expert must state explicitly the facts and assumptions on which he based his opinion. Secondly, in so far as his opinion is based on facts, those facts must be proved by admissible evidence. There are three sources from which an expert could draw the basis of his opinion.

(i) From facts observed by the expert.

(ii) Facts drawn from the expert's general experience.

(iii) Facts told to the expert, which, he has assumed as correct for the purposes of his opinion.

The expert is also bound by hearsay rule and he could not testify as to the facts of which he has no personal knowledge. With respect to the facts which expert himself has observed, the issue of hearsay will not come and only with respect to the other two, issue of hearsay would come. As per English law and law in Singapore[26], facts drawn from expert's general experience will not fall within the barriers of exclusionary rule.[27] Only the third category falls within hearsay rule. This aspect will be considered in the subsequent chapter.

## 6.3 Admissibility Criteria of Forensic Psychological Evidence in Common Law Countries

In order to analyze the legal issues emerged in the common law countries when evidence based on Forensic Psychological Tests are admitted, it is important to analyze the admissibility criteria in these countries. The analysis of evidentiary value

24 *Makita (Australia) Pty Ltd.* v. *Sprowles,* (2001) 52 NSWLR 705 at para 59.See also, s.51 of The Indian Evidence Act, 1872 which provides that whenever the opinion of any living person is relevant, the grounds on which the opinion is based are also relevant.

25 *Makita (Australia) Pty Ltd, supra.*

26 Which is analogous to Indian Evidence Act.

27 The English courts side-stepped the hearsay problem by the fiction of holding that the expert is not giving inadmissible hearsay evidence on these points but is giving admissible non-hearsay evidence derived from his "general experience". See, *English Exporters (London) Ltd.v Eldonwall Ltd*., [1973] 1 Ch. 415. See also, *supra* n.18 at p.58.

of Forensic psychological evidence is made in the light of judicial decisions and legal literature in various jurisdictions.

### *6.3.1 Position in USA*

In USA, admissibility criteria[28] of scientific expert evidence are governed by *Daubert* Criteria and amended Federal Rules of Evidence, 1975, which is equally applicable in the case of Forensic Psychological evidence.

### *6.3.2 Position in UK*

Under English law, usually expert evidence will be admitted, if it meets the helpfulness test[29] and also assist the judges on those issues which are outside ordinary experience.[30] Thus regarding admissibility of novel scientific evidence, there is lack of regulation and the English courts focus only on the relevance of the evidence and potential helpfulness to the jury.[31] The case laws indicate that the categories of expert evidence are not closed and that lack of general acceptance would not *ispo facto* bar admissibility of expert evidence in the novel scientific field.[32] However Law Commission in its recent report has made strong recommendation for reform and has proposed that there should be an "explicit gate keeping role for the trial judge with a clearly defined test for determining whether preferred expert evidence is sufficiently reliable to be admitted."[33]

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28 . Is considered in detail in later part of this chapter.

29. Professor Jane L. Ireland, "Scientific Expert Evidence in the UK: Proposing an Abridged *Daubert*," Vol.17 (1), Journal of Forensic Practice, 2015, at pp. 1-26 at p.5, available at http://www.emeraldinsight.com/doi/pdfplus/10.1108/JFP-03-2014-0008 (accessed on 09/10/ 2017).

30 . *R.* v. *Turner, supra* n. 21.

31 . *supra* n.18 at p.36.

32 . *ibid.* In *Gilfoyle*, [1996] 3 All E.R. 883, the Court attempted to introduce the *Frye* test applied in US and rejected the Psychological evidence based on the ground that it lacked scientific acceptance. However, in *R. v Dallagher*, [2002] EWCA Crim 1903 at para 29, available at http://www.bailii.org/ew/cases/EWCA/Crim/2002/1903.html (accessed on 20/10/2017) the court was reluctant to accept either the *Frye* test or the *Daubert* test.

33 . *The Admissibility of Expert Evidence in Criminal Proceedings in England and Wales: A New Approach to the Determination of Evidentiary Reliability*, Law Commission of England and Wales, Consultation Paper 109, 7 April 2009, at Para 6.4 available at, http://www.lawcom.gov.uk/app/uploads/2015/03/cp190_Expert_Evidence_Consultation.pdf (accessed on 05/09/2017). This test would be applied after the test of relevance and substantial assistance but before any exclusionary discretion was considered.

The Law Commission's proposal, therefore, is the following legislative test of admissibility:

(a) The opinion evidence of an expert witness is admissible only if the court is satisfied that it is sufficiently reliable to be admitted.

(b) The opinion evidence of an expert witness is sufficiently reliable to be admitted if:
(i) the evidence is predicated on sound principles, techniques and assumptions;

Apart from the Law Commission's proposals, The Privy Council, in *Lundy* v. *R.,*[34] has outlined certain standards[35] similar to that of *Daubert* and to the Criminal Procedure Rules 2015.[36] These standards are to be considered by the courts while assessing expert evidence. Thus, *Lundy* decision and Criminal Procedure Rules, 2015, together take England and Wales towards stricter *Daubert* standards as existing in USA regarding admissibility of scientific evidence. This means that any new scientific test must satisfy these hard tests for being admitted in court room. However it is to noted that after *Daubert*, both Psychological evidence[37] and evidence based on Forensic Psychological Tests, find more accommodation in US court rooms.[38]

### 6.3.3. *Position in Australia*

The criterion for admissibility of scientific evidence in Australia is governed by Section 79 of The Evidence Act, 1995, which specifically deals with admissibility

(ii) those principles, techniques and assumptions have been properly applied to the facts of the case; and

(iii) the evidence is supported by those principles, techniques and assumptions as applied to the facts of the case.

(c) It is for the party wishing to rely on the opinion evidence of an expert witness to show that it is sufficiently reliable to be admitted.

34. 2013 UKPC 28, available at http://media.nzherald. co.nz/webcontent/ document /pdf/201341/Lundy%20judgment.pdf (accessed on 20/10/2017). The *Lundy* case is decided by Privy Council. Though England and Wales are not part of hierarchy of Privy Council and the decisions of the Privy Council are not binding, it has persuasive effect on the courts of England.

35 Like whether the theory or technique can be or has been tested; whether the theory or technique has been subject to peer review or publication; the known or potential rate of error or existence of standards; and whether the theory of technique has been generally accepted.

36 Part 19 of Criminal Procedure Rules, 2015 deals with Expert evidence. The Criminal Practice Directions 2015, Direction 19A.5 provide the factors the court may take into account when determining the reliability of expert evidence. These include: (a) the extent and quality of the data on which the expert opinion is based; (b) if the opinion relies on an inference from the findings, whether the opinion explains how safe the inference is; (c) if the opinion is based on a test, measurement or survey, whether the opinion takes into account the degree of precision or margin of uncertainty; (d) whether the material upon which the opinion is based has been reviewed by others with relevant experience; (e) the extent to which the expert opinion is based on material outside the field of expertise; (f) whether the expert took into account all relevant information in arriving at an opinion; (g) where in a range the expert opinion resides and whether the expert's preference has been properly explained; and (h) whether the methods followed the established practice in the field. See, Criminal Practice Directions, 2015, at pp.67-69, available at https://www.judiciary.gov.uk/wp-content/uploads/2016/11/cpd-2015-conso lidated -with- amendment-no2-nov2016.pdf (accessed on 20/10/2017).

37. A.M. Colman and R. D. Macka, "Psychological Evidence in Court: Legal Developments in England and the United States," Vol.1, Psychology, Crime and Law, 1995, pp.261-268 at p.267.

38. *ibid.*

of scientific evidence. This Section provides that "if a person has specialized knowledge based on his training, study or experience, the opinion rule does not apply to evidence of the opinion of that person that is wholly or substantially based on that knowledge." Section 135 of the Act, provides that the court may refuse to admit evidence, if its probative value is outweighed by its prejudicial effect or if it is misleading or confusing or cause or result in undue waste of time. It is pertinent to note that The Evidence Act, instead of providing area of expertise, simply states "specialized knowledge" acquired through training, study or experience, thus making law regarding admissibility of expert evidence very liberal.[39] However analysis of case laws would reveal that the courts while interpreting Section 79 of the Act had adopted stricter standard for admissibility of expert evidence.[40]

For instance, in *HG* v. *R.*,[41] the court held that the words "specialized knowledge" used in Section 79 did not give rise to a test which is narrow than that of common law test laid down in *R.* v. *Bonython.*[42] As per *Bonython* rule, the expert opinion if relevant is admissible, if it is sufficiently organized or recognized body of knowledge to be accepted as reliable.[43] The High Court appeared to have laid down a hybrid standard differing from both *Frye* and *Daubert*.[44] It was based on general acceptance and reliability.[45]

39. See, Stephen J. Odgers and James T. Richardson, " Keeping Bad Science Out of Court Room-Changes in American and Australian Expert Evidence Law," Vol.18(1), University of New South Wales Law Journal, 1995, pp.108- 129 at pp.109-111. The Australian Law Reforms Commission had also, after analyzing the expertise test of *Frye*, had observed that, it is worthless as it would provide unnecessary restrictions and makes determination of facts difficult. The Australian Law Reform Commission had opted for flexibility and left the ultimate mode of evaluation to the courts. See, *supra* n. 18 at p. 34.
40. V. R. Dinakar , *Scientific Expert Evidence: Determining Probative Value and Admissibility in Court Room*, Eastern Law House private Limited, Kolkata, (2013), p.180.
41. *H.G*. v. *R.*, *supra* n. 21 .This case involved psychological evidence on the behavioral patterns of children who have been victims of trauma. The view taken in *HG* v.*R.* was followed in later decisions like *Makita (Australia) Pty Ltd*, *supra* n. 24, and *Dasreef Pty Ltd* v. *Hawchar*, [2011] HCA 21.
42 . *supra* n. 19.
43 . *ibid.*
44. *ibid.*
45. *ibid.*

The test for admissibility of expert evidence as articulated in *Osland* v. *The Queen* [46] is that the evidence is admissible with respect to relevant matter about which ordinary persons are not able to form a sound judgment without the assistance of those possessing special knowledge or experience in the area. So the question is, whether ordinary persons could form an opinion as to the evidentiary value of Forensic Psychological Tests. The subject matter relating to Forensic Psychological Tests are actually outside the comprehension of ordinary person and therefore expert testimony is required.[47]

### *6.3.4 Position in Canada*

In Canada, legal test for admissibility of expert evidence was laid down in *R.* v. *Mohan.*[48] The gate keeping role vests with the trial judge and the party tendering evidence has the burden to prove four criteria to the satisfaction of court. They are: (i) Necessity in assisting the trier of fact; (ii) Absence of exclusionary rule; (iii) Properly qualified expert;[49]and (iv) Relevance.[50]

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46 . *Osland* v. *The Queen,* (1998) HCA 75. Same view is also taken in *Bonython supra* n. 19, which dealt with the admissibility of police handwriting evidence.

47 . This was contended by petitioners counsel in *Mallard* v. *The Queen*, [2003] WASCA 296.

48. [1994] 2 S.C.R. 9. (Can S.C.).

49 . Regarding qualified expert requirement, the view is that, it is not a strict requirement. This requirement does affect admissibility but only goes to the issue of weight. See, *Dulong v. Merril Lynch Canada Inc.* (2006), 80 OR (3d) 378 (S.C.), 2006 CanLII 9146 (ON SC), at para. 21, available at https://www.canlii.org/ en/on/onsc/doc/2006/20 06canlii9146/2 006canlii9146.html (accessed on 16/12/2017). See also, Jared Craig and David Wachowich, "Neuroscience as Expert Evidence in Canadian Courts," (Paper Presented at Legal Education Society of Alberta, University of Calgary, Alberta, 16 March, 2014), at pp.1-33 at p.10,available at http://docplayer.net/1950548-Neuroscience-as-expert-evidence-in-canadian-courts-jared-craig-and-david-wachowich-q-c-1.html (accessed on 23/08/2017), provides a list of factors that judges regularly consider in determining if an expert is properly qualified. They are:1. the proposed expert's professional qualifications; 2. actual experience; 3. participation or membership in professional associations; 4. the nature and extent of his or her publications; 5. involvement in teaching; 6. involvement in courses or conferences in the field and his or her efforts to keep current with the literature and 7. Whether the expert has previously been qualified as an expert in the area.

50 . The relevance enquiry requires two stage application *viz.*, logical relevance and cost benefit analysis. The logical relevance test requires that evidence need only to increase or diminish the probability of fact in issue. The cost benefit analysis weighs the probative value of the evidence against its prejudicial effect. Expert evidence is relevant, when it is founded on proven facts and it supports the inferences drawn from those facts. It also tends to prove the important issue in the proceedings. Even if expert evidence is admitted, the judge still has the discretion to limit the scope of such evidence, if it becomes prejudicial. *Probative value,* that is the benefit of evidence, is assessed on the particular facts of the case in light of what the evidence purports to prove. *Prejudicial effect* concerns whether the evidence occasions undue time, delay, and when it confuses or "distorts the fact-finding process". Jared Craig and David Wachowich *supra.*

Regarding admissibility of scientific expert evidence, the approach of Canadian courts is to consider reliability and validity with heightened scrutiny.[51] The standards are similar to that of *Daubert* criteria,[52] and also are consistent with *Mohan's* Standards. All these factors may equally apply with respect to evidence based on Forensic Psychological Tests.

## 6.4 Admissibility Criteria of Forensic Psychological Evidence: Indian Position

In India there is no uniform standard as to weigh the reliability of scientific evidence as in USA. Corroboration is the requirement and it plays a vital role in the admissibility determination of scientific evidence.[53] As there is no legislation governing Forensic Psychological Tests and its evidentiary aspects, the issues pertaining to the admissibility of these tests are governed by Indian Evidence Act, 1872 and The Code of Criminal Procedure, 1973. When Indian Evidence Act is analysed, it could be seen that Sections 45, 46[54] and 51[55] are the relevant provisions regarding expert evidence.

Sec 45 states as follows: "when the court has to form an opinion upon a foreign law, or of science or arts, or as to identity of handwriting or finger impressions, the opinion upon that, of persons specially skilled in such foreign law, science or art or in questions as to identity of handwritings or finger impressions are relevant facts. Such persons are called experts."

51 . *R. v. Trochym*, [2007] 1 S.C.R. 239 (Can S.C.). Trochym adopts a similar test and reasoning as laid down in *Daubert* , 509 U.S. 579. (1993).

52 . They are, whether the theory or technique can be or has been tested; whether it has been subjected to peer review and publication; what is its known or potential error rate; General Acceptance Test.

53 . *Magan Biharilal* v. *State of Punjab*, A.I.R. 1977 S.C. 1091. In this case the court held that it is unsafe to base conviction solely on expert opinion without corroboration. However in some cases Supreme Court has neglected the strict application of corroboration requirement rule. For instance in *Murailal* v. *State of M.P*, A.I.R. 1980 S.C. 531, the court had observed that there is no rule which has crystallised as a rule of law that opinion evidence must never be acted upon unless it was substantially corroborated.

54 . Section 46 of the Act, states that facts not otherwise relevant are relevant, if they support or are inconsistent with opinion of experts, when such opinions are relevant. Thus, as per Section 46, the facts that help the fact finder to cross check the credibility of the expert opinion, becomes relevant.

55 . Section 51 of The Indian Evidence Act, states that "wherever the opinion of any living person is relevant, the grounds on which such opinion is based are also relevant."

Though psychological evidence is not specifically mentioned as a subject in Section 45, on the plain reading of the provision, it seems that psychological evidence would come within the meaning of expert evidence. The Section contemplates "arts and Science."[56] Psychology is regarded as soft science and hence would come within the ambit of Section 45 of The Indian Evidence Act, 1872.[57] Illustration (b)[58] to Section 45, further asserts that intention of law makers is also to include psychological evidence within the ambit of Section 45.

Moreover, the trend of court is always, to give wider interpretation to "arts and science" in Section 45 so as to include the subjects and also the persons having special skill to give their opinion.[59] The Courts have also adopted the practice to include most evidence which were non-existent at the time of enactment of Indian Evidence Act and read them within the ambit of 'arts' or 'science' under Section 45. Thus, as technology advanced, Section 45 had been interpreted as to include Type Writing evidence, Ballistics, DNA etc. within its ambit.[60] So it may be stated that, psychological evidence based on Forensic Psychological Tests would also come within the ambit of 'arts' or 'science' under Section 45.

It is pertinent to note that Amir Ali,[61] in his authoritative work has settled the issue as to the "subject" that partake the character of "arts" or "science" so as to come within the ambit of Section 45. He postulated two questions for this purpose. (i) Is the subject matter of inquiry such that inexperienced persons are unlikely to

56 . Arts in its legal significance embrace every operation of human intelligence whereby something is produced outside the nature. The term "science" include all human knowledge which has been generalised and systematised and has obtained method , relations and forms of law .See, Sudipto Sarkar and V.R. Manohar, *Sarkar " Law of Evidence,*" *Vol.1*, Lexis Nexis, Butterworths Wadhwa, Nagpur, (17th edn., 2010),p.1162.

57 . Herein after referred to as The Act.

58 . Illustration (b) to Section 45 is as follows; (b) The question is, whether A, at the time of doing a certain act, was by reason of unsoundness of mind, is incapable of knowing the nature of the act, or that he was doing what was either wrong or contrary to law. The opinions of experts upon the question whether the symptoms exhibited by A commonly show unsoundness of mind, and whether such unsoundness of mind usually renders persons incapable of knowing the nature of the act which they do or of knowing that what they do is either wrong or contrary to law are relevant. This illustration clearly implies that the law makers intended to include psychological evidence also.

59 . *State* v. *S.J. Choudary*, A.I.R. 1996 S.C.1491. The evidence of type writer expert which was unknown when Indian Evidence Act was enacted was admitted in evidence.

60 . For ballistics see, *Mohinder Singh* v. *State*, A.I.R. 1953 S.C. 415; for DNA, see, *Kamati Devi* v. *Poshi Ram*, (2001) 5 S.C.C.311.

61. Sir John Woodroffe and Syed Amir Ali, *Law of Evidence*, Lexis Nexis, Butterworth's Wadhwa, (18th edn., 2009), pp. 2539-2540.

prove capable of forming correct judgement upon it without the assistance of experts? (ii) Does it so far partake the character of a "science or art" as to require a course of previous study or habit, in order to obtain a competent knowledge or nature, or is one which does not require such habit or study?

The first question pertains to helpfulness test which means that the expert opinion is admissible if it is helpful to the determination of fact in issue.[62] This means that the test is whether the matter is outside the knowledge or experience of a layman.[63] Regarding the second question, he states that the disciplines "arts and science," is distinguished from other forms of opinions which do not require a course of previous habit or study. Thus the words "arts or science," include all subjects on which a course of special study or experience is necessary for the formation of opinion.[64] If these two tests are considered, it could be stated that Forensic Psychological Tests deal with specialised knowledge which requires the assistance of experts to form correct judgement. It also requires systematic study to acquire competent knowledge. Hence it may be stated that psychological evidence based on Forensic Psychological Tests would come within the ambit of Section 45 of Indian Evidence Act.

The other condition required under Section 45 is the qualification, which is required for an expert to make testimony. He must be specially skilled in such art, science etc. This means that opinion of expert is admissible in evidence as relevant fact under Section 45. This does not mean that opinion of expert is always binding on the court. The expert opinion also has to be appreciated like evidence of any other witness and has to be appreciated in accordance with law. It would be acceptable only if it is trust worthy.[65]

62 . *supra* n. 40 at p.187.

63 *Rama Chandra Agrawal* v. *Regency Hospital Limited,* A.I.R. 2010 S.C. 806, 809.

64 . *supra* n.56. The author states that the English and American authorities also have shown a tendency to w**i**den the scope of "arts or science" as much as possible and the subject matter of expert opinion is not confined to matters which are subjects of pure or higher science or pure arts. Thus all the subjects with respect to which peculiar skill or judgment or experience or special study is necessary so as to obtain competent knowledge of its nature would come within the ambit of arts or science. There is no reason to suppose that in India also legislature has intended to make a departure from the English law on the subject.

65 . With respect to expert opinion, the court has more responsibility. If the prosecutor fails to put relevant questions which would help the court to come to correct conclusion, with respect to the matter in issue, the court has a duty to see that the particulars are revealed. The court has a

Expert evidence under Section 45 of Indian Evidence Act may be considered as fact necessary to explain or introduce relevant facts.[66] Thus the criterion for admissibility is that the evidence is helpful to the court. Hence it appears that, helpfulness test is the criteria for the admissibility of Forensic Psychological evidence.

Apart from the provisions in The Indian Evidence Act, Section 293 of The Code of Criminal Procedure, 1973, also recognizes the role of Government forensic scientist in criminal justice system. In fact, Section 293 of the Code has overriding effect on Section 45 Indian Evidence Act.[67] As per this section, any document which is a report of the scientific expert to whom this section applies upon a matter which is duly submitted to him in the course of any proceedings under the Code, for examination or analysis and to report, may be used as evidence in the proceedings under the Code. The object of this section is to exempt certain Government scientific officers from examination in view of their qualification, status and experience in the field. The concerned provisions have specifically mentioned the officers who are exempted from personal appearance before the court of law.[68] In such cases, the court will proceed with their report unless it is disputed by the opposite party or by the prosecution.[69]

Though Forensic Psychologist is not mentioned in Section 293 of the Code, the expert report based on these tests would come within the ambit of the Section. In fact, similar issue was considered by the Supreme Court regarding ballistic expert in *State of HP* v. *Mastram.*[70] In that case, the court held that Section 293 is wide enough to include junior scientific officer (ballistic expert) of Central Forensic Science

duty under s.165 of The Act to put relevant questions so that it may arrive at right conclusion. s. 51 Indian Evidence Act states that value of expert evidence lies exclusively on the grounds on which it is based.

66 . s.9 of Indian Evidence Act, 1872, states about the facts that are necessary to explain or introduce relevant facts.

67 . *supra* n. 40 at pp.191-193.

68. *ibid.*

69 . Regarding the admissibility of scientific expert report under Section 293, there is no hard and fast rule as to the question of summoning the expert. It depends on facts and circumstances of the case. Judicial practice shows that, court would probe all relevant information based on which the expert came to the conclusion like reasons, test of experiments, factual data etc., which would help the court to arrive at its own independent decision. See, *State of H.P.* v. *Jailal*, A.I.R. 1999 S.C. 3318. For discussion, see *supra* n. 40 at pp.193-194.

70 . (2004) 8 S.C.C. 660.

Laboratory, though not enumerated in the provision. Taking cue from this decision, it may be stated that though unmentioned in Section 293, the provision is wide enough to include this branch also.

Regarding admissibility of Forensic Psychological Tests, it is pertinent to note that, in *Selvi* v. *State of Karnataka*,[71] though court discussed about *Daubert* test as to the admissibility of Polygraph evidence, the test was held inadmissible on the grounds of reliability and violation of exclusionary rules of evidence. Regarding Narco Analysis, the court held the test as inadmissible on the grounds of reliability and lack of scientific consensus. As far as BEOS Test was concerned, the test results were held inadmissible on the ground that it fails to meet *Daubert* test. Thus different reasons[72] were stated by the court for rejecting these three Tests. Hence it may be stated that different criterion was adopted by the court for different Forensic Psychological Tests to determine its evidentiary value.

## 6.5 Interpreting Polygraph Evidence in Court Room

### *6.5.1 Position in USA*

In USA, the first case on Polygraph which came for admission before US Court of Appeals, District Court of Columbia, in 1923, is *Frye* v. *US.*[73] It is also the case in which criteria as to admissibility of scientific evidence was first formulated. In that case, the petitioner has appealed contending that the lower court had erred in excluding expert testimony based Systolic Blood Pressure Test[74] in a criminal trial of murder. The evidence supported his innocence.

The Appellate Court held that the Systolic Blood Pressure Test has not gained general acceptance of the relevant scientific community to which it belong, in order to be admissible in evidence.[75] Thus, in the first case regarding admissibility of Polygraph Test, the legal issue identified by the court was that, the test has not gained general acceptance of the scientific community of the particular field. So, it

71 . (2010) 7 S.C.C. 263.
72. Apart from reasoning based on the grounds of violation of Human Rights.
73. 293 F. 1013 (D.C. Cir. 1923), available at https://www .law.ufl.edu/_pdf/f aculty/ little/topic8.pdf ( accessed on 01/10/2017).
74. Predecessor of Polygraph Test.
75. Known as the *Frye* test. This standard would serve as the primary gauge for determining the admissibility of not only Polygraph evidence but also scientific evidence in general for nearly seven decades.

was for non satisfaction of evidentiary criteria, the court rejected the evidence based on the Systolic Blood Pressure Test, which was favorable to the accused.

Over a time, three dominant approaches as to the admissibility of Polygraph Test emerged.[76] The first approach adopted by majority of jurisdictions was *per se* in admissibility of Polygraph evidence stating various reasons.[77] Main reasons were unreliability of the test[78] and tendency to waste precious time of the court.[79]

Most of the reasons for non admissibility were crystallized in US Court of Appeals, Eighth Circuit's decision in *US* v. *Alexander.*[80] In that case, the issue was whether the lower court has erred in not allowing the defendant to introduce favorable Polygraph Test results at trial. The court applied *Fyre*'s General Acceptance test and stated that because of the unreliability of Polygraph evidence, it could not be admitted. Additionally, the court also relied on highly prejudicial impact, which the testimony based on Polygraph expert would likely to have on the jury. Hence court affirmed the lower court's decision of rejecting favorable Polygraph evidence. Thus evidence favorable to the accused was rejected on the ground of unreliability of the test results. In *Common Wealth* v. *Benjamin Mendes,*[81] the Supreme Court of Massachusetts, rejected Polygraph evidence on the ground that the evidence confuses jury and usurps role of jury. Thus, it could be seen that, even if the Polygraph evidence was in favour of the accused, the test results were held as

76. Timothy B. Henseler, "A Critical Look at the Admissibility of Polygraph Evidence in the Wake of *Daubert*: The Lie Detector Fails the Test," Vol.46, Catholic University Law Review, 1997, pp. 1247-1297 at p.1248.
77. *United States* v. *Skeens*, 494 F.2d 1050, 1053 (D.C. Cir. 1974). In this case, US Court of Appeals, District of Columbia Circuit, upheld *per se* rule of inadmissibility of Polygraph; see, *Marks* v. *United States*, 260 F.2d 377, 382 (10th Cir.1959); See also, *Grant* v. *State*, 374 S.W.2d 391, 392 (Tenn. 1964). In both the cases, courts rejected Polygraph Test results.
78. *United States* v. *Gloria*, 494 F.2d 477, 483 (5th Cir. 1974). and *United States* v. *Bando*, 244 F.2d 833, 841 (2d Cir. 1957). In both cases, courts refused to admit Polygraph evidence due to its unreliability.
79. *Brown* v. *Darcy*, 783 F.2d 1389, 1397 (9th Cir. 1986). The, US State Court of Appeals, Ninth Circuit Court opined that the precious judicial resources consumed in earlier trial could have been conserved in future cases with a *per se* rule of inadmissibility.
80. 526 F.2d 161 (8th Cir. 1975).
81. 547 N.E.2d 35, 41 (Mass.1989).In this case, court re-examined the admissibility of Polygraph evidence in the common wealth. The accused in this case was charged with offence of rape of a child below 16 years. The accused filed motion for the admission of evidence based on court ordered Polygraph Test result. The lower court allowed this motion. This was vacated by Supreme Court of Massachusetts. The court held that Polygraph evidence is inadmissible in criminal trial in the common wealth either as substantive evidence or corroborative evidence or for the purpose of impeachment of testimony.

inadmissible on the ground of admissibility criteria like reliability, prejudicial impact on the judge etc.

The second approach as to admissibility of Polygraph Test evidence was, allowing the use of Polygraph evidence only when both parties stipulated in advance to its inclusion.[82] The third approach is allowing the use of Polygraph evidence at trial, if certain specified conditions were met and even without stipulation.[83] This approach is evidenced in 1975, when New Mexico admitted Polygraph Test evidence. The state had also enacted exhaustive criteria as to admissibility of the evidence.[84] In *State* v. *Dorsey*,[85] the Supreme Court of New Mexico overruled its earlier decision requiring stipulation for admissibility of Polygraph evidence. The court laid down three requirements for the Polygraph Test result to be admitted in evidence. Firstly the Polygraph examiner must be well qualified. Secondly, the reliability must be proved by the authorities in the field to be adequate. Lastly the test made on the subject must be valid.

Later some federal courts, which were earlier staunch opponents of Polygraph admissibility, reconsidered their view of *per se* inadmissibility and permitted

82. See *Anderson* v. *United States*, 788 F.2d 517, 519 (8th Cir. 1986) and *Codie* v. *State*, 313 So. 2d 754, 756 (Fla. 1975), wherein courts permitted the admission of Polygraph results based on oral stipulation, so long as the accused voluntarily submits to the test. See also, *State* v. *Roach*, 576 P.2d 1082, 1086 (Kan. 1978). The Supreme Court of Kansas, allowed the admission of Polygraph evidence if so stipulated on the record, if the accused consents to the examination, the examiner is subjected to cross-examination, and the court finds the examiner and test procedures acceptable.

83. See, for e.g., *United States* v. *Miller*, 874 F.2d 1255, 1262 (9th Cir. 1989), US State Court of Appeals, Ninth Circuit, held that Polygraph evidence can be admissible if used for a limited purpose. In *State* v. *Dorsey*, 539 P.2d 204, 204-05 (N.M. 1975), the Supreme Court of New Mexico, allowed the admission of Polygraph evidence, provided the examiner is qualified, the testing process can be shown to be reliable, and the actual tests are valid. In *United States* v. *Ridling*, 350 F. Supp.90 (E.D. Mich.1972), the Federal Court addressing perjury, accepted the theory of the Polygraph as sound and directly relevant to the perjury issue before the court. The court held that the results of the Polygraph examination would be admissible, if the court selected the expert, if the court-appointed expert is allowed to testify and the defendant could counter that testimony with his own expert testimony. Same view was taken in other cases like *United States* v. Zeiger, 350 F. Supp.685 (1972).

84. See, New Mexico Rules of Evidence, 1973, Rule 707.

85. 539 P.2d 204 (N.M. 1975).In this case, the accused who was charged with murder in the second degree, filed an appeal against trial court's order which excluded Polygraph evidence. The Court of Appeal, New Mexico held that the lower court erred in excluding Polygraph evidence in the light of New Mexico Rules of Evidence and also based on the requirements of Due Process in criminal trials.

Polygraph evidence if certain conditions are satisfied.[86] Consistent with this trend of abolition of *per se* rule, the Court of Appeal, took a giant leap by admitting Polygraph Test evidence in *US* v. *Piccinonna*.[87] The court noted that in some circumstances, Polygraph satisfied the General Acceptance Standard as required by *Frye*. It was held that Polygraph testimony could be admissible in two situations. One is, when the parties themselves agree on a stipulation to that effect, secondly, for the purpose of impeaching and corroborating the testimony of witnesses.[88]

In 1975, Federal Rules of Evidence[89] was enacted. Rule 702 to 706 deals with expert evidence. Rule 702 of FRE stated that "if scientific, technical or other specialized knowledge will assist the trier of fact to understand the evidence or to determine a fact in issue, a witness qualified as an expert by knowledge, skill, experience, training or education may testify thereto in the form of an opinion or otherwise." Rule 402 states that, all relevant evidence is admissible. The term relevance is defined in Rule 401 as, the evidence which has a tendency to make the existence of any fact that is of consequence to the determination of action more probable or less probable than it would be, without that evidence.

Even after the enactment of FRE, confusion as to the admissibility criteria to be adopted continued and different jurisdictions followed different criteria for admissibility of Polygraph evidence. The situation was the same till another significant development took place in 1993, when US Supreme Court in *Daubert*[90]

86. *United States* v. *Kampiles*, 609 F.2d 1233,1244-45 (7th Cir. 1979).The US Supreme Court of Appeal, held that Polygraph evidence may be admissible to rebut assertions that a confession was coerced. See also, *United States* v. *Johnson*, 816 F.2d 918, 923 (3rd Cir. 1987).The US State Court of Appeal, Third Circuit, relying on *Kampiles,* admitted Polygraph evidence.
87. 885 F.2d 1529 (11th Cir.1989). In this case, the accused was charged with perjury and was convicted. He sought to admit polygraph testimony, which the District Court refused to admit. On appeal, the Eleventh Circuit Court of Appeal held that *per se* ban of polygraph evidence should be modified and the case was remanded to trial court to reconsider polygraph evidence.
88 . *ibid.* See also, *supra* n. 76 at p.1265.
89 . Hereinafter referred as FRE.
90. *Daubert* v. *Merrell Dow Pharmaceuticals*, 509 US 579 (1993). Majority opinion was given by (Blackburn, White O'Connor, Scalia, Kenedy, Souter and Thomas JJ).In this case, the petitioners Jason Daubert and Eric Schuller had serious birth defects and they sued respondent Merrell Dow Pharmaceuticals alleging that their birth defects was due to benedictin injection which was given to their mothers during pregnancy, This medicine was manufactured by respondent company. Before the Federal court, the respondents argued that the drug do not have side effects and introduced expert evidence in their favour. Against this, the petitioners also submitted the expert testimony of eight experts who gave the opinion that benedictin could

decision gave several criteria for the admissibility of scientific evidence in general which are applicable to Polygraph evidence also. The court stated that FRE have displaced *Frye* test.[91] Hence, General Acceptance Test is no longer the criteria for the admissibility of expert testimony. The court held that FRE have established relevance and reliability to determine whether scientific evidence is admissible. The term scientific knowledge in Rule 702 requires that the pre requisite of evidentiary reliability must be satisfied which give emphasis on the principles adopted and methodologies used, than actual conclusion reached by the expert. The court held that the trial judges are the gate keepers and are responsible for assessing the admissibility of scientific evidence. The court directed that the trial judges shall conduct a preliminary assessment of whether the reasoning or methodology underling the testimony is scientifically valid and can properly be applied to the facts in issue.

The court laid down some guidelines to determine reliability of scientific knowledge. They are:

(i) Whether the theory or technique can be or have been tested?

(ii) Whether the theory or the technique has been subjected to peer review and publication?

(iii) Known or potential error rate and the maintenance of standard controlling operations.

(iv) Whether there has been general acceptance within the general scientific community.

The court specifically stated that, the focus shall be given to the principles and methodology and not to the conclusions which they generate. The Court also held that even if the evidence satisfies the above criteria, it could still be inadmissible under Rule 403, if its probative value is outweighed by its prejudicial effect.

cause birth defects. Court held that the scientific evidence submitted by petitioners have not sufficiently established to have gained general acceptance in the field to which it belongs. The Court of Appeal for the Ninth Circuit also affirmed this decision. Hence appeal to the Supreme Court.

91. Even J. Stevens and C.J. Rehnquist who gave dissenting opinion have concurred in this respect.

Even after *Daubert,* there was confusion[92] as to the issue whether the guidelines are applicable only to scientific knowledge. This issue was clarified by the subsequent Supreme Court decision *Kumho Tyre Co Ltd* v. *Carmichae*l.[93] *Kumho* maintained that *Daubert* criteria are applicable not only to scientific testimony but also to other technical and specialized knowledge. Thus *Daubert* criteria are applicable to evidence based on Forensic Psychological Tests.

*Daubert* has profound influence as to the admissibility of Polygraph evidence.[94] Some state jurisdictions took the view that *per se* inadmissibility is not desirable in the wake of *Daubert.*[95] For instance, in *US* v. *Posado,* [96] the defendants were charged for possession of forty four kilograms of cocaine which was recovered from their luggage at the airport. The defendants sought to admit favorable Polygraph evidence. The District Court refused to consider this evidence. On appeal, the Fifth Circuit Court remanded the case to trial court and directed that the admissibility of the Polygraph results must be assessed in light of *Daubert* factors. The court stated that tremendous advances have been made in Polygraph examination since *Frye.* All the remaining controversy as to the accuracy of the test is unanimously attributed to the variations in the integrity of testing environment and qualifications of the examiners. These variations exist in many other disciplines also and the scientific evidence of these disciplines is routinely admitted during trial. There are also indications that Polygraph technique has become more standardized and is widely used by both Government and employers alike. Hence court held that it

92 . There were also other legal issues. While *Daubert* gave wide discretion to trial courts to determine admissibility criteria, it says nothing about the standard of review of a trial court's decision in appellate court. This issue was considered by the Supreme Court in *General Electric Comp* v. *Joiner,* 522 U.S. 136 ( 1997). In this case, the respondent Joiner alleged that the cause of his lung cancer was due to exposure to polychlorinated biphenyls in electrical transformers manufactured by General electric company. The Supreme Court held that when judicial action is taken in a discretionary matter, such action cannot be set aside by a reviewing court unless it has a definite and firm conviction that the lower court committed a clear error of judgement in the conclusion it reached.

93. 526 U.S. 137 (1999). *Kumho* involved the testimony of an expert on tire failure analysis. District court applied *Daubert* criteria and excluded expert testimony. The Eleventh Circuit Court held that *Daubert* criteria is applicable only to scientific evidence and not to non scientific expert testimony. This was quashed by US Supreme Court.

94 . *supra* n. 76 at p.1250.

95 . See, *Miller* v. *Heaven*, 922 F. Supp. 495, 500 (D. Kan. 1996).The US District Court of Kansas, stated that it is "necessary for the court to evaluate the admissibility of Polygraph examinations in light of the Supreme Court's decision in *Daubert."*

96 . 57 F.3d 428 (5th Cir. 1995).

removes the obstacle of *per se* ban as to Polygraph evidence as it was expressly overruled by the Supreme Court.[97]

However some courts excluded Polygraph evidence solely on the ground of Rule 403.[98] It may be stated that generally, the trend of the courts was not to *per se* exclude Polygraph evidence and in some cases courts permitted limited usage of Polygraph testimony.[99]

The position was clarified by US Supreme Court in *US* v. *Scheffer*.[100] In this case Rule 707 of Military Rules of Evidence[101] was challenged as violative of defendants Sixth Amendment right to present defense. In this case, the defendant, a US Air force service man had faced the court martial proceedings, as his routine urine analysis test showed that he had consumed some prohibited drugs. He took the defense of innocent injection of the drug which was also confirmed by the Polygraph Test. But in court martial proceedings, Polygraph result was not admitted as evidence. Thereupon, he went in appeal to Air force Court of Appeals which affirmed the decision of lower court. The Court of Appeals of Armed Forces reversed the decision and held that absolute exclusion of Polygraph evidence would violate the defendants Sixth Amendment right to present defense. Thus, the matter reached the Supreme Court. The Supreme Court held that exclusion of Polygraph evidence does not violate the accused's Sixth Amendment right. The Court held that Polygraph Test results should not be admitted on account of its inherent unreliability.[102] However *court also stated that individual jurisdiction may come to*

97 . Same view was taken in *US* v. *Galbreth*, 908 F. Supp. 877 (DNM1995); and in *US* v. *Cordoba*, 104 F. 3d 225 (9th Cir. 1997).

98. See, cases like,*United States* v. *Kwong*, 69 F.3d 663, 668 (2nd Cir. 1995), *United States* v. *Lech*, 895 F. Supp. 582, 584-86 (S.D.N.Y. 1995), wherein courts refused to admit Polygraph evidence on the ground of Rule 403.Courts refused to apply *Daubert* for similar reasons.

99 . *United States v. Crumby*, 895 F. Supp. 1354 (D. Ariz. 1995).

100. 523 U.S. 303(1998).

101 . The relevant part of the provision is as follows:- " (a) not withstanding any other provision of law, the results of a Polygraph examination, the opinion of the Polygraph examiner, or any reference to an offer to take, failure to take, or taking of a Polygraph examination, shall not be admitted into evidence."

102 . Regarding the reliability issue, *Scheffer* found that there are favouring and contrasting views. There are also disagreements among state and federal courts regarding the admissibility of Polygraph Test results. There is also no simple way to know whether in a particular case the Polygraph results are accurate, given the uncertainties and doubts that plague even the best Polygraph examinations.

*different conclusions as to whether Polygraph Test results are to be admitted*. The Court also held that admitting Polygraph results would displace the fact finding role of judges and lead to collateral litigation.[103] Hence court held that, it cannot be said that US Military president has acted arbitrarily in promulgating a *per se* exclusion of Polygraph Test result.

It is also important to consider the dissenting opinion given by Justice Stevens in this regard. He held that rules of evidence generally do not make any blanket prohibition against the admissibility of Polygraph test result. Justice Stevens compared Polygraph Test results with other scientific evidences like defendants future dangerousness, hand writing analysis and finger print identifications. He came to the conclusion that these evidence are less trust worthy than Polygraph evidence. He also held that Polygraph evidence do not violate ultimate issue rule and held that the evidence would actually assist the jury in coming to a conclusion. The dissenting opinion given by J. Stevens is considered as productive by many scholars.[104] Even court in *Scheffer* has also permitted individual states to take their own view in this regard. It seems that, the view taken by J. Stevens seems more appropriate, especially when the accused has no other favourable evidence. In fact, this view had been endorsed by US Supreme Court in *Rock* v. *Arkansas.*[105] In that case, the court held that if hypnotically refreshed memory is the only defence available in the circumstances, it must be admissible in evidence. The court had given emphasis to right to present defence of the accused.

Even after *Scheffer*, the trend of state jurisdictions is against *per se* ban on admissibility of Polygraph evidence. For instance, in *Lee* v. *Martinez*[106] the New

103. The court also held that Polygraph evidence would diminish the role of jury in making credibility assessment. Unlike other expert evidence who testify about factual matters outside the juror's knowledge, the Polygraph expert only supply the jury with another opinion as to whether witness was telling the truth. Court also held that the opinion of Polygraph Test results gives conclusion about ultimate issue in the trial. It is also important to note that there are scholarly opinions which state that the opinion of Justice Thomas, stating that jury's exclusive role as lie detector do not constitute the majority and hence does not have precedential value. For detailed discussion, see, Bellin, Jeffrey, "The Significance (If Any) for the Federal Criminal Justice System of Advances in Lie Detector Technology," Vol.80, Temple Law Review, 2007, pp.711-742 at pp.711, 718,719.
104. *supra* n.40 at p.248.
105 . 483 U.S. 44 (1987).
106 . 96 P.3d 291 (2004).

Mexico[107] Supreme Court had ruled that Polygraph evidence satisfies *Daubert* standard as to admissibility of scientific evidence. The court had relied on the liberal thrust of rules of evidence.[108] The court also stated that jurors are generally knowledgeable in many areas and hence it could be concluded that any doubt regarding the admissibility of scientific evidence should be resolved in favour of admission than exclusion. In this case, the petitioners challenged the order of District Court which held that Polygraph results are not sufficiently reliable for admissibility in courts in New Mexico. The District Court had held that the limited probative value of Polygraph Test results is substantially outweighed by its prejudicial effect,[109] rendering it inadmissible under Mexico Rules of Evidence. Lastly, the Court also held that Polygraph evidence generally provides specific instances of conduct of the subject for the purpose of supporting or attacking his credibility and hence may not be proved by extrinsic evidence.

However, New Mexico Supreme Court rejected the findings of District Court and held that Polygraph Test is sufficiently reliable to be admissible under New Mexico Rule of Evidence11- 702.The court applied *Daubert* criteria and stated that Polygraph Test satisfies testability factor. The court held that testability criterion merely requires that the scientific theory underlying expert testimony to be refutable. The Court also held that Polygraph evidence satisfies peer review and publication condition. Regarding error rate, court stated that as number of Polygraph validation studies has found high accuracy rates relating to Polygraph Testing, the error rate is low. The Court found that maintenance of standards controlling element also is satisfied. The Court considered General Acceptance Test and stated that scientific community has neither uniformly accepted nor rejected this scientific test. Hence, the

107 . In comparison to other states, New Mexico has by far the most permissive approach to Polygraph evidence. Polygraph evidence was freely admitted in New Mexico as long as Rule 11-707 requirements were fulfilled. In 1993, the New Mexico Supreme Court in *State* v. *Alberico*, 861 P.2d 192, 194 (N.M. 1993), decided that this rule did not incorporate the *Frye* test. Instead, the hallmark for the admissibility of "scientific knowledge" is evidentiary reliability, whether the reasoning or methodology underlying the expert testimony is scientifically valid and can be applied to the facts in issue. To make this determination, the New Mexico courts consider the *Daubert* factors.

108 . Jodi Meyers, "*Lee* v. *Martinez*: Does Polygraph Evidence Really Satisfy *Daubert*?," Vol. 46 (4), Jurimetrics, 2006, pp. 391-406 at p.395.

109. Such results "are substantially outweighed by the danger of unfair prejudice, confusion of the issues or misleading the jury, or by considerations of undue delay, waste of time or needless presentation of cumulative evidence.

court held that Polygraph evidence has satisfied *Daubert* standard. Thus it may be stated that, after *Daubert*, the trend of state jurisdictions is more in favor of admissibility of Polygraph evidence. It may also be stated that, if this evidence is the only the evidence available to the defendant, then rejecting the evidence on the grounds of reliability, admissibility etc., would actually result in more injustice than justice. It may thus be stated that presently, potential for admissibility of Polygraph evidence appears to be greater than before.[110] Legislature has also amended FRE Rule 702 in consonance with *Daubert* and *Kumho* decision.[111]

Regarding the exclusion of Polygraph evidence on the grounds of R. 403 of FRE, it is based on the underlying assumption that the test is scientifically invalid, unreliable and would mislead the jury. However the ground of misleading the jury is not confined to Polygraph evidence alone, but is equally applicable to other scientific expert evidence like DNA, finger print etc. In several articles and case laws, it is stated that in the modern era, there is no scope for jury being unduly influenced by any scientific evidence.[112] Moreover, juristic opinion is that exclusion of lie detector evidence on the ground that it would have prejudicial effect under Rule 403 has constitutional implications also.[113] If the accused himself brings the evidence in his favour, then rejecting the evidence on the ground that it would unduly prejudice the jury would violate the right of the accused to present his defence. In

110 . Not only in trial, but also in post trial hearings and also in administrative matters. For trial, see cases like, *United States* v. *Posado*, 57 F.3d 428, 434 (5th Cir. 1995); *Chatwin* v. *Davis County*, 936 F.Supp. 832, 834-35 (D. Utah 1996).

111 . Rule 702. Testimony by experts:
If scientific, technical, or other specialised knowledge will assist the trier of fact to understand the evidence or to determine a fact in issue, a witness qualified as an expert by knowledge, skill, experience, training, or education, may testify thereto in the form of an opinion or otherwise, if (1) the testimony is based upon sufficient facts or data, (2) the testimony is the product of reliable principles and methods, and (3) the witness has applied the principles and methods reliably to the facts of the case.
The new conditions inserted into Rule 702 now expressly lay down reliability and suitability of methodology as preconditions of admissibility of expert testimony
The second Amendment was made in 2011. It only restyled the language without changing the content of the rule. R 702 now reads as follows. "A witness who is qualified as an expert by knowledge, skill, experience, training or education may testify in the in the form of an opinion or otherwise if (a) If the experts scientific, technical, or other specialised knowledge will assist the trier of fact to understand the evidence or to determine a fact in issue (b) the testimony is based upon sufficient facts or data, (c) the expert has applied the principles and methods reliably to the facts of the case.

112. *supra* n. 40 at p.297.Also see, *supra* n. 103.

113 . *supra* n. 103.

that circumstance, it would not be constitutional to exclude exculpatory Polygraph evidence on the sole ground that it would be prejudicial to the jury under Rule 403.

The Courts[114] in some jurisdictions have also held that *per se* exclusionary rule as to Polygraph admissibility would violate defendant's due process rights and right to present defence and his right to fair trial.[115] In *McMorris* v. *Isreal,*[116] the US Court of Appeals for Seventh Circuit held that exercise of unfettered discretion by the prosecution in not stipulating for Polygraph examination without assigning reasons violates due process rights of the defendant. It also seems that if favourable Polygraph evidence is excluded on the grounds of admissibility criteria ensuring right to fair trial, it would result in more injustice than justice.

A perusal of case laws on Polygraph admissibility in USA, revealed that most of the legal issues pertaining to Polygraph Test was identified as inherent unreliability of the test due to various factors like lack of qualification of experts, use of countermeasures etc; failure to comply with evidentiary standards like general acceptance, *Daubert* criteria, and also violative of evidentiary rules like ultimate issue rule, prejudicial impact of the test results on jury, wastage of time of court and leading to collateral issues etc. All these issues are linked to right to fair trial. It is also important to note that though states differ in their opinion as to admissibility of the test results in criminal trial, the states are unanimous as to the use of the test as an investigative aid. It is also important to note that after *Daubert,* most of the state

114 . *See McMorris* v. *Israel*, 643 F.2d 458, 466 (7th Cir. 1981) and *Jackson* v. *Garrison*, 495 F. Supp. 9, 11 (W.D.N.C. 1979). The Courts held that exclusion of Polygraph evidence denied the defendant the constitutional right to fair trial , *rev'd*, 677 F.2d 371 (4th Cir. 1981).There are also contrary decisions. See, *United States* v. *Black*, 684 F.2d 481, 483 (7th Cir. 1982) and *Conner* v. *Auger*, 595 F.2d 407,411 (8th Cir. 1979). The court concluded that federal prosecutor's unexplained refusal to stipulate to Polygraph Test, in light of overwhelming evidence of the guilt of the accused, did not violate due process.

115. Jeffrey Philip Ouellet, "*Posado* and the Polygraph: The Truth Behind Post-*Daubert* Deception Detection," Vol.54, Washington and Lee Law Review, 1997, pp. 770-816 at p.808. The procedural Due Process argument originated in 1973, when the Supreme Court in *Chambers* v. *Mississippi*, 410 U.S. 284, 300-303, (1973),concluded that exclusionary rules are subject to stricter review when they conflict with a criminal defendant's due process rights and when a state's policy justification is not substantial. Applying this rationale to the Polygraph evidence leads to the conclusion that, when the examination results are reliable and relevant within the terms of Rule 104(a) and are critical to the accused's defence, then the accused has a due process right to present the results absent a compelling state justification for exclusion. See also Thomas K. Downs, "Admission of Polygraph Results: A Due Process Perspective," Vol.55. Indiana Law Journal, 1979, pp. 157- 190 at p. 166.

116 . *Mc Morris* v. *Israel, supra* n. 114.

jurisdictions are against *per se* ban of the test. Thus analysis of case laws in US state jurisdiction, would lead to the conclusion that with proper regulation and safeguards the investigatory and evidentiary use of Polygraph Test do not violate right to fair trial of the accused.

### *6.5.2 Position in UK*

In UK, Polygraph Test is not used in criminal investigation. National Policing Position Statement on the use of Polygraph, by Association of Chief Police Officers, 2014, has stated that Polygraph shall not be used in criminal investigation because of its adverse consequences.[117] There is no criminal case in UK, which has decided the constitutionality and admissibility of Forensic Psychological Tests including Polygraph. There is only one civil case decided by Queens Bench Division, *Fennell* v. *Jerome Property Maintenance Ltd*[118] which dealt with admissibility of truth drugs and hence other Forensic Psychological Tests by implication. The court held that the evidence as inadmissible on the ground that it would distort the normal process of trial. If the evidence is admitted, it would usurp the role of judge and it would result in the introduction of inadmissible previous consistent statements. Scholars are of the opinion that the judicial skepticism towards admissibility of Forensic Psychological Tests is the scientific uncertainty[119] of these Tests, doubtfulness as to the competency and qualifications of experts.[120]

After the enactment of Human Rights Act, 1998, the judicial interpretation is required to be in tune with the rights enshrined in European Convention on Human

117. However, Polygraph testing became legalized in probation settings in Britain with the passage of The Offender Management Act, 2007. For details see, Daniel Marshall and Terry Thomas, "Polygraphs and Sex Offenders," Criminal Law and Justice Weekly, July 10, 2015, available at https://www.criminallawandjustice.co.uk/features/Polygraphs-and-Sex-Offenders (accessed on 05/09/2017). This aspect is already analyzed in Chapter III.

118. *The Times*, (26 November 1986), Queen's Bench Division. Mr. Justice Tucker held that as a matter of principle, evidence produced by the administration of a mechanically or chemically or hypnotically induced test on a (plaintiff) witness so as to show his veracity or otherwise, was not admissible in an English court of law. See also, Lewis Kennedy, "The Polygraph and Luke Mitchell – Gmmick or Overlooked Forensic Tool?," Issue 424, Scottish Legal Action Group, February 2013, pp.1-8 at p.6, available at http://www.mackinn onadvocates .co.uk/articles-c ases/lie-detector-Tests.aspx, (accessed on 24/05/2015).

119. Lack of reliability is due to many factors like, it is not applicable with respect to psychopaths, hardened criminals, can be subjected to countermeasures etc. See, Hodgkinson T, *Expert Evidence: Law and Practice*, Sweet and Maxwell, London, (1990), p. 245.

120 . *ibid*. Hodgkinson argued that under English law, Polygraph examinations were unlikely to be admissible "on general principles" and noted that Polygraph operators frequently had no psychiatric or other medical expertise and thus their evidence was likely to be "outside the existing authorities on the admission of evidence of state of mind." See also, Hodge M Malek, *et.al*., *Phipson on Evidence*, Sweet and Maxwell Limited, UK, (16th edn., 2005), at para 13 – 33.

Rights, 1950. Moreover many procedural safeguards, which protect the rights of the accused and that which maintain the integrity of the system at the same time, like exclusionary rules,[121] are also to be respected, which may have negative impact on judicial acceptability of these tests.[122] There are also scholarly views which hold this opinion.[123] But there are also diametrically opposing views, which strongly propose that Polygraph Tests must be administered during criminal investigation. For instance, Glanville Williams had proposed as early as in 1962, that complainants in sex offence cases should undergo Polygraph Testing, due to the difficulties frequently associated with these cases.[124]

The recent shift exhibited by the legal system in England also seems favorable for the assimilation of the tests like Polygraph, in future. There are academic opinions which state that England and Wales have also arguably departed from advesarialism and has transformed the criminal justice process to that which prioritizes efficiency and effectiveness.[125] It is also important to note that Criminal Procedural Rules, 2015, also permit the judges to manage cases so as to fulfill the overriding objective of dealing with cases justly.[126] To meet this overriding objective, the court has to be equipped itself with various case management powers and one such power is 'making use of technology'.[127] The term 'Justly' may be defined as acquitting the innocent and punishing the guilty and if Forensic psychological Tests like Polygraph could assist the court in this regard, then it must be assimilated in criminal justice system with proper safeguards.[128]

121 . Like exclusion of evidence obtained improperly or which violates ultimate issue rule etc.
122. Johnston, "Brain Scanning and Lie Detectors: The Implications for Fundamental Defence Rights," Vol.22 (2), European Journal of Current Legal Issues, 2016, available at http://eprints.uwe.ac.uk/28569 (accessed on 09/10/2017).
123. *ibid*.
124 . Prins L, "Scientific and Technical Aids to Police Interview – Polygraph – Part 3," (1987) 41 (1), Australian Police Journal, 28, as cited in Foot note 20, Marilyn McMahon, "Polygraph Testing For Deception in Australia: Effective Aid to Crime Investigation and Adjudication?," Journal of Law and Medicine, September 2003, pp.24-27 at p.27.
125. *ibid.*
126. *ibid.*
127. *ibid.*
128. *ibid.*

### *6.5.3 Position in Australia*

The first reported Australian case on Polygraph Test is *R* v. *Murray*[129] by the District court of New South Wales. In that case the accused sought to adduce favorable Polygraph results as evidence. The court held that evidence is inadmissible due to the reasons[130] like, that the sole purpose of Polygraph evidence is to bolster the credit of accused as a witness; that it violates ultimate issue rule, that the witness is not a qualified expert and is only an operator of Polygraph, that the evidence is devoid of any scientific basis and it is only hearsay and has no probative value.

Another important decision is *Mallard* v *The Queen*.[131] In this case, the Supreme Court of Western Australia was confronted with the issue of admissibility of Polygraph evidence. The appellant was convicted for murder. He sought intervention of the Appellate Court on several grounds. One of the grounds was to admit favourable Polygraph Test evidence, which he has undergone subsequent to his conviction. The Polygraph Test was administered by an expert who was well known for his experience and credentials. The court held that it is not shown that Polygraph technique is a reliable method for determination of truth. It was also held that Polygraph does not have degree of acceptance within the relevant scientific community. Hence court concluded that Polygraph evidence would not assist the trier of fact.

In this case the court had adopted an evidentiary standard closer to that of *Daubert* to determine admissibility. The main criterion was the reliability of the scientific methodology from which the evidence adduced had emerged. The acceptance by relevant scientific community was only considered as one of the factors to evaluate the admissibility. The court also stated that the technique lacked scientific theory which it meant could not be adequately falsified or verified by replication. Thus Polygraph evidence was disallowed on the ground of unreliability of process.

In this context, it is important to note the observations of J.Kirby in *State Rail Authority of New South Wales* v. *Earthline construction Ltd*, [132] who had opined that

129 . (1981) 7 A Crim R 48.
130. *id*. at p. 49.
131. *Mallard* v. *The Queen*, [2003] WASCA 296.
132. (1999) 160 ALR 588, 618.

Polygraph Test is reliable. Justice Kirby had approved the statement made by Justice Delvin. Lord Delvin had stated that "I doubt my own ability … to discern from a witness demeanor, or the tone of his voice, whether he is telling the truth."[133] Kirby J stated that, in future, technology might be developed which would assist the courts in determining issues of witness credibility.

In *R.* v. *McHardie and Danieison,*[134] it was stated that, expert opinion should not be rejected merely because the technique or methodology or instrument has not been used in court before. Similarly, even if the evidence had been rejected for not satisfying the requirements of admissibility at one time that may change.[135] Subsequent theoretical and practical scientific development in the technology may later meet the requirements of admissibility.[136] Same reasoning may be applied with respect to Polygraph evidence.

In spite of *Mallard* decision, there is increased usage of Polygraph testing in Australia.[137] It is also important to note that The Evidence Act, 1995 and parallel legislation adopted in New South Wales have abolished some common law rules like ultimate issue rule.[138] Thus many scholars have opined that most of the barriers against admissibility of Polygraph evidence have been removed.[139] It may be summed up that, with proper safeguards and improvement in technological developments may persuade the courts to reconsider their decisions.

### *6.5.4 Position in Canada*

In *Phillion* v. *R.* [140] and in *R.* v. *Beland,*[141] the Supreme Court of Canada has rejected Polygraph evidence on the grounds of traditional exclusionary rules of

133. *ibid*.
134 . [1983] 2 NSWLR 733,763.
135. *Mallard*, *supra* n. 131 p. 86.
136. Counsel of the petitioner contended this in Mallard. He stated that this is the situation regarding Polygraph now.
137. Marilyn McMahon, *supra* n. 124 at p.27. In this article author Marilyn McMahon, states that there will be more use of Polygraph in defence, Australian Security and intelligence. He also stated that, for reasons that are not clear, Australian law enforcement agencies seem to have exhibited more interest in the use of Polygraph testing in crime investigation than hitherto.
138. *supra* n. 18 at p.31.
139. *ibid*. But, critics have long stressed that such evidence should not be admitted because of the unproven reliability of the technique.
140. *Phillion v. R.*, [1978] 1 S.C.R. 18.
141. *R. v. Beland*, [1987] 2 S.C.R. 398.

evidence like rule against oath helping, rule against past inconsistent statements etc. In *Phillon* V. *R.,*[142] the appellant at his trial for murder had sought to admit Polygraph evidence. The evidence was introduced to show that the appellant had lied while confessing to the police. The trial judge refused to admit the evidence and the appeal to Ontario Court of Appeal being dismissed, the matter was seized by Supreme Court of Canada. All the members of the court held that the evidence is inadmissible. J.Richie stated that, Polygraph evidence which is sought to be introduced, is by an expert, who is not qualified. The court also held that presence of Polygraph machine or the expert will not make the evidence admissible. The court observed that "the admission of Polygraph evidence would mean that any accused who made a confession could elect to deny or not to deny its truth under oath and substitute for his own evidence, the results produced by a mechanical device with the help of an expert relying exclusively on its efficacy as a test of veracity."[143]

The Supreme Court ruled in *Phillion*, that Polygraph results were inadmissible, on grounds very different from that of *Frye* grounds.[144] The dictum did not require "explicit weighing of the validity of the Polygraph as a scientific instrument."[145] Regarding the standard set by the trial court in determining the admissibility of Polygraph evidence, Soren Frederiksen stated that "blinded by science view" the trial court used an extremely high standard of reliability for Polygraph, taking into consideration the nature of the test.[146] Same approach was taken in Morand Report also.[147]

142. *supra* n. 140.
143. *ibid.*
144. Soren Frederiksen, "Brain Fingerprint or Lie Detector: Does Canada's Polygraph Jurisprudence Apply to Emerging Forensic Neuroscience Technologies?," Vol. 20(2), Information and Communications Technology Law, 2011, pp.115-132, at p.119.
145. *ibid.*
146. *ibid.*
147. The Royal Commission headed by Justice Morand, was constituted to investigate into Metropolitan Toronto Police Practices including a series of allegations concerning the use of excessive force among other allegations in the interrogation of a series of individuals in 1974 . In the course of the hearing, several of the complainants had taken Polygraph Tests in order to reinforce their complaints. Justice Morand, had to determine whether the evidence provided by the Polygraph Test is to be admitted and if so what weight to give to it. See, *ibid.*

It seems that in another decision, *R* v. *Wong (No.2),*[148] the trial court reached a different conclusion than that reached by trial judge in *Phillon* and Morand report and admitted Polygraph evidence. This decision is discussed in an article by Soren Frederiksen. He states that in *Wong*, the court accepted 90% accuracy rate as claimed by the proponents. Regarding the influence on jury, the court stated that jury has sufficient information to make proper assessment of Polygraph evidence. It was also stated that, there is no reason to treat Polygraph evidence different from other scientific evidence. Thus, in these three early decisions, three judges reached different conclusions with respect to Polygraph. But all of them focused their analysis on assessing the reliability of Polygraph Test.[149] However, in appeal from trial court, in *Wong*, the Appellate Court followed *Phillion* and held that trial judge was incorrect in admitting Polygraph evidence.

The Supreme Court's concern in *Phillion* was not the reliability of Polygraph evidence, but on the kind of evidence the Polygraph examiner provides. The court opined that this evidence is unlike that of psychiatrist evidence and requires the admission of the particular statement made to the Polygraph examiner. The court expressed its concern that if this evidence is allowed, this is a way for allowing otherwise inadmissible hearsay to be introduced in evidence at trial. The court also held that Polygraph evidence violates other evidentiary rules like oath helping etc.

*Phillion* was affirmed by the Supreme Court in *Beland* v. *R.* In this case several accused had been tried by single judge on charge of conspiracy to commit robbery. All of them denied the participation in the conspiracy and applied to submit to lie detector test. But the trial judge held that evidence would be inadmissible. The accused filed appeal to Quebec Court of Appeal which was allowed. But on further appeal, the Supreme Court of Canada restored the conviction. MacIntrye J [150] held that, the admission of Polygraph evidence in the circumstances of this case would offend several rules of evidence like producing evidence solely for the purpose of bolstering the credibility of witness, admission against past consistent out of court

148. 1976 trial judge Meredith J. *R.* v. *Wong* (*No. 2*), (1976), 33 C.C.C. (2d) 511.
See also the Supreme Court decision, *R.* v. *Wong* (*No. 2),* [1990] 3 S.C.R. 36.
149. *supra* n. 144 at p.122.
150 . (With whom Dixon CJ,C Beetz and LeDain JJ, concurred).

statements, etc.[151] Even modification of rules will not serve any purpose other than disrupt proceedings, cause delays and lead to numerous complications. The court stated that this view is not based on the fear of inaccuracies of Polygraph test. The Court even stated that with respect to the issue of inaccuracy of Polygraph Test results, the court was not supplied with any evidence so as to reach a conclusion. The court held that, even if there is significant percentage of error that by itself will not render the evidence from Polygraph Test evidence inadmissible in court because error is inherent in human affairs.[152]

Thus, generally Polygraph evidence is inadmissible. But this does not mean that it is in admissible in all circumstances. Although Polygraph evidence is inadmissible, a Polygraph examiner may provide testimony, if confession has been obtained, as per the dictum of *R* v. *Oickle.*[153] In that case, the court held that confession obtained during the course of a Polygraph examination will be considered as voluntary and also as admissible if certain conditions are satisfied. In this case, J. Iacobucci stipulated certain factors to be considered to determine whether a confession is voluntary. They are:

(i) The court must consider any promises or threats made by the police;

(ii) The court should look whether there was oppression, distasteful conduct which would amount to involuntary confession;

(iii) The court must consider whether the suspect has operating mind or of sound mind when he made the confession or whether was aware of what he was stating; and

151. Justice McIntyre found that the Polygraph is inadmissible on four grounds. He found that the Polygraph evidence in this case violates the rule against oath-helping as it was adduced solely for the purpose of bolstering a witness's credibility (*R.* v. *Beland*,1987, para. 9). It also violates the rule against the admission of past consistent statements as it represented an out-of-court statement advanced to bolster the credibility of a witness (*R.* v. *Beland*, 1987, paras. 11–12). It violates the rule relating to character evidence since it is evidence not of general good character 'but of a specific incident and its admission would be precluded under the rule' (*R.* v. *Beland*,1987, para. 14) The fourth ground for finding the Polygraph inadmissible was that the kind of testimony provided by Polygraph examiner was not appropriate subject matter for expert testimony. Justice McIntyre finds that the ready-made inference provided by the Polygraph examiner is one that is within the expertise of judges and juries and that it is a basic tenet of the legal system that credibility and reliability are capable of being assessed by triers of fact (*R.* v. *Beland*, 1987, para 1).

152 . *supra* n. 144.

153. *R v. Oickle*, [2000] 2 S.C.R. 3.For discussion of many cases in which statement made during Polygraph Test was held admissible, see *ibid*.

(iv) The court should also consider the tactics used by the police to elicit the confession. If it is shocking the community, then it should be inadmissible.

It could be found that the Supreme Court has rejected Polygraph evidence not on the ground of reliability but on the ground that the Polygraph examiner give evidence as to the truthfulness of the subject which is the province of jury.[154] This means that, rather than finding Polygraph evidence admissible or inadmissible based on scientific merits, the court actually focused on the claims the Polygraph experts made like [155] the claims about the truthfulness of an individual's out of court statements and also on other evidentiary grounds. Thus the evidentiary analysis is made, not on the viability of Polygraph Test as a forensic science technique but rather on different kinds of claims which the expert makes with respect to the test.[156]

Though courts refuse to admit Polygraph evidence at trial, Canadian courts are hesitant to curb their use in outside court settings like police investigation,[157] employment settings[158]etc. Recent judicial decisions are supportive of the use of Polygraph in police interrogation.[159]

There are some juristic views which also assert that Polygraph Tests conducted in modern times, satisfies *Mohans* criteria for admissibility of scientific evidence. For instance Jeremy Tiger, in his work,[160] has stated that *Phillion* and *Beland* were decided prior to *Mohan*[161] and *Abbey*[162] and the test satisfies the relevant standards. [163] He analyzed each and every issue against Polygraph inadmissibility and countered it. Regarding the first issue, that admission of Polygraph evidence bars cross examination. i.e. the accused would provide evidence by proxy, he stated that Polygraph expert testifies only about the physiological

154 . *supra* n. 144.
155 . *id.* at p. 119.
156. *ibid.*
157. *ibid.* Confessions made during Polygraph examinations are allowed in evidence. Failing to tell a suspect that a Polygraph Test result is inadmissible does not prima facie invalidate a criminal confession. See also, *R. v. Oickle*, *supra* n. 153.
158. *supra* n. 144.
159 . *R.* v. *Oickle*, *supra* n.153.
160. Jeremy Tiger, "Guilty Minds: The science, Law and Admissibility of the Concealed Information Test in the Canadian Contest," pp.1-16 at p. 9, available at http://www.ottawamenscentre.com/news/20160727_Guilty_Minds_by_Jeremy_Tiger.pdf ( accessed on 06/09/2017).
161. *supra* n. 48.
162. *R.* v. *Abbey*, [1982] 2 S.C.R. 24.
163. *supra* n. 160.

responses of the defendant at the time of conducting the Tests. He actually does not testify anything about the statements made by the accused. Hence if accused testifies about his innocence, the crown is not deprived of the opportunity to cross examine. Hence this criticism won't stand.

Regarding qualification of expert which was raised as a concern, the author stated that presently the experts have requisite qualification as per the requirements of American Polygraph Association. Regarding judicial inefficiency which was stated as another reason to reject Polygraph evidence in *Beland*, in the opinion of Jeremy Tiger, this is a concern for all expert evidence. Regarding ultimate issue rule, the author stated that after *Beland,* this rule had been rejected in many cases. The author also stated that the concerns raised against Polygraph Test are based on *Beland* and *Phillion* which were decided prior to *Mohan* and *Abbey* which is the present law governing scientific expert evidence.[164] The author also stated that the test results could be used in ways that may not violate evidentiary rules and it is also based on well researched and well understood principles.

It may thus be summed up that, though Polygraph evidence was held inadmissible by courts, as per scholarly opinions, those cases were decided prior to *Mohan* and *Abbey* which had laid down criteria for admissibility of scientific evidence.[165] The scholarly opinion is in favor of admissibility of that evidence. Judicial skepticism is mainly on the ground of violation of exclusionary rules which

164. Regarding the element of necessity, evidence is considered as necessary when it provides information about a subject regarding which the jury or the judge has no experience. Polygraph Test is an application of means of measuring physiological responses with respect to which it is highly unlikely that judge may understand the results. Procedure of the Tests involves rigorous process, which is beyond the comprehension of lay man. Thus expert testimony as to Polygraph Test satisfies necessity criterion. Regarding the issue of relevance, in *Abbey*, court held that expert evidence to be admissible must be logically relevant to a material issue. This means that the evidence must as a matter of fact of human experience and logic makes the fact in issue more or less likely. The author states that the use of Concealed Information Test in Polygraph is to establish the identity of person who has committed the offence by possessing that information which he alone possesses, apart from the investigating officer. It is unlikely that this information is possessed by anyone other than the guilty party. Thus logical relevance is established. Because as matter of human experience, it is more likely that a person with guilty knowledge is the person who committed the crime and a person who doesn't have that knowledge is likely to be innocent. Same reasoning may be applied with respect to BEOS and Brain Fingerprinting.See, *supra* n. 160 at p. 10.

165. General acceptance is only one of the factors to determine reliability. The Canadian courts had rejected General Acceptance Test. So long as novel science has a reliable foundation, lack of general acceptance alone is not necessarily fatal. Hence the rules of expert evidence in Canada are flexible and non-elusive. See *R. v. J (J.-L.),* [2000] 2 S.C.R. 600 [*J.L.*] at paras 28-29.

is limited in application, than on the ground of reliability. Courts are also receptive to admit the statements made during the test and the test is recognized as an important investigative aid. Thus it seems that, polygraph evidence may receive acceptability in Canadian court room in future.

### *6.5.5 Position in India*

The issue of admissibility of Polygraph evidence was considered by Kerala High Court in *M.C. Sekharan* v. *State of Kerala*,[166] and the court held that it is against the fundamental human rights of an accused. However in later cases courts have recognised the utility of Polygraph Test as an investigative aid and has held that involuntary administration of the test do not violate human rights of the accused.[167] Even from empirical study it has come in evidence that, the investigating officers have the opinion that these tests are useful investigative aids.

At this juncture, it is important to note the decision in *Aditi Sharma and another* v. *State of Maharashtra*, [168] wherein, the court had considered the admissibility of Polygraph Test result[169] and held that the test result may be used as corroborative evidence. In *Selvi*, [170] the Supreme Court finally settled the issue regarding the admissibility of Polygraph Test result. The court discussed *Daubert* Criteria and considered the reliability of this test and also examined the test in the light of exclusionary rules of evidence. The court rejected Polygraph Test on all these grounds.[171] However Court permitted admissibility of the test results, if the test is voluntarily taken and recovery is made under Section 27 of Indian Evidence Act.

The analysis of admissibility of Polygraph evidence in common law countries and in India would lead to the conclusion that the Polygraph Test is most prominent among Forensic Psychological Tests and is widely used in criminal justice settings. When US position is analysed, it is found that, most of the legal issues pertaining to

166. 1980 Cri. L.J. 31 (Ker.) This is not considered as ratio of the case.
167. *Dinesh Dalmia* v. *State of Madras*, 2006 Cri.L.J.2401 (Mad.); *Rojo George* v. *State of Kerala*, 2006 (2) K.L.T. 197; *Rama Chandra Reddy* v. *State of Maharashtra*, 2004 All MR (Cri) 1704.
168. In *State of Maharashtra* v. *Sharma*, C.C., No. 508/07, Pune, June 12, 2008, 1, paras. 1, 22, pp. 1, 18 (India) available on https://lawandbiosc iences.files.wordpress.c om/2008/12 /be osruling2.pdf (accessed on 15/02/2015).
169 . Detailed discussion is made under BEOS Test.
170 . *supra* n.2.
171 . Apart from other Constitutional and Human Rights grounds.

Polygraph Test was identified as inherent unreliability of the test due to various factors like lack of qualification of experts, use of countermeasures etc. ; failure to comply with evidentiary standards like general acceptance, *Daubert* criteria, and also violative of evidentiary rules like ultimate issue rule, prejudicial impact of the test results on jury, wastage of time of court and leading to collateral issues etc. Similarly in Australia also, judicial skepticism towards polygraph was on the grounds of reliability and violation of exclusionary rule. In Canada, Polygraph evidence is disallowed not on the ground of scientific validity, but on ground that it violates evidentiary rules. In UK, Polygraph Test is not used in criminal investigation. In a single civil case in which the admissibility issue was considered stated that the test results are inadmissible on the grounds that if admitted, it would violate exclusionary rules like ultimate issue rule, past inconsistent statements etc. All these issues are linked to right to fair trial of the accused. In India all these legal issues were discussed by the apex court in *Selvi*. The court rejected Polygraph evidence on the grounds of unreliability as well as on the grounds of exclusionary rules. The court categorically stated that involuntary administration of the test and admissibility of the test results would violate right to fair trial of the accused.

However it is also important to note that in common law countries as well as in India, the present trend is more receptive towards Polygraph Test. In USA, though various state jurisdictions differ in their opinion as to admissibility of the test results in criminal trial, the states are unanimous as to the use of the test as an investigative aid. In USA, it is important to note that after *Daubert* most of the state jurisdictions are against *per se* ban of the test. Thus analysis of case laws in US state jurisdiction, would also lead to the conclusion that with proper regulation and safeguards the investigatory and evidentiary use of Polygraph Test do not violate right to fair trial of the accused.

As far as English position is concerned, though presently Polygraph Test is not used in criminal investigation, the recent shift exhibited by legal system in England like departure from advesarialism, prioritizing efficiency and effectiveness also seems favorable for the admission of these tests in court room in future. In Australia, even after *Mallard* decision, there is increased usage of Polygraph

Testing.[172] With the abolition of some of the exclusionary rules like ultimate issue rule, most of the barriers against admissibility of Polygraph evidence have been removed. In Canada, though courts refuse to admit Polygraph evidence at trial, Canadian courts are hesitant to curb their use in outside court settings like police investigation. As per scholarly opinions those cases which disallowed Polygraph evidence were decided prior to *Mohan* and *Abbey* which had laid down criteria for admissibility of scientific evidence.[173] The scholarly opinion is in favor of admissibility of Polygraph evidence.

When Indian position is analyzed, it could be found that though involuntary administration of the Polygraph Test is not permissible, the results of voluntarily administered Polygraph Test result is admissible in accordance with Section 27 of Indian Evidence Act. Thus admissibility of Polygraph evidence is permitted for a limited purpose in India.

It seems that all the countries are unanimous as to the view that Polygraph may be used as investigative aid. The difference of opinion is only with respect to its admissibility in trial. The courts make no distinction as to whether the evidence is favorable or unfavorable to the accused. In Australia and Canada, though the test is recognized as an investigative aid, judiciary is reluctant to admit the test results. In USA, state jurisdictions take three divergent approaches, viz. per se inadmissibility, admissibility by stipulation and per se admissibility. In those state jurisdictions where this test is admissible, regulation, expertise and administration is well advanced than in India. In India, the test results are allowed to put in evidentiary use by the prosecution in accordance with Section 27 of Indian Evidence Act. It seems that the judicial skepticism towards these tests, in all the countries is due to that fact that experts were unable to prove the reliability of the tests before the courts. It may be summed up that, with proper safeguards and improvement in technological developments in future may persuade the courts in all the countries to reconsider their decisions.

172. Marilyn McMahon, *supra* n.124.
173. See *supra* n. 160.

## 6.6. Admissibility of Evidence Based on Narco Analysis

When common law position is examined, it is found that only in USA there are reported case laws on Narco Analysis. In Australia, there is no direct case law on Narco Analysis and only case laws on hypnosis are there. It seems that hypnotically refreshed testimony is admissible, if certain safeguards are in place.[174]

### *6.6.1 Position in USA*

The issue as to admissibility of evidence based on truth drug test was considered in many cases. Most of the legal issues identified by the courts are, unreliability of the test, lack of general acceptance of scientific community, prejudicial impact of the test etc. having impact on right to fair trial of the accused. In *State* v. *Hudson,*[175] wherein the accused was convicted of rape of a 65 year old woman, the issue of admissibility of evidence based on Narco Analysis was considered. The accused in this case was administered truth serum, under the influence of which, he denied his guilt. The accused tried to introduce the testimony of the psychiatrist who had conducted the test. In this case, the appellate court held that the statement may be considered only as self serving declaration.[176] The court seems to have been following *Frye* Test and also evidentiary rules. In *People* v. *Cullen,* [177] the court refused to admit statements made under Narco Analysis interrogation on the ground of hearsay rule.

174 . Australian decisions as to hypnosis follows the guidelines laid down in the New Zealand case, *R.* v. *Mc Felin,* [1985] 2 NZLR 750,751 (CA). In that case, the court has laid down certain guidelines as to admissibility of evidence derived from Forensic hypnosis. The court held that hypnotically refreshed memory shall be admitted in evidence only, if certain conditions are satisfied. It was stipulated that the evidence must be limited to the matters which the witness could recall and has made prior to the test. This means that if the evidence is brought for the first time during or after hypnosis, it shall not be admissible in evidence. The additional requirements for admissibility are that:

(i) There must be documentary evidence as to the original recollection from the witness regarding the subject matter;

(ii) The witness must have consented for the test;

(iii) The test was performed by an independent and experienced hypnotist; and

(iv) The test must be conducted not in the presence of relevant parties to the proceedings and it must also be recorded. See, *R* v. *Jenkyns,* (1993) 32 NSWLR 712, wherein Australian court followed *Mc Felin.*

175 . 289 S.W. 920 (1926).

176 . *id*. at p. 921(1926).See also *Orange* v. *Common Wealth of Virgina,* [1950]191Va 423.The Supreme Court of Virgina refused to admit the defendants evidence which was based on truth serum test.

177 . 234 P. 2d 1 (1951).

In *State* v. *Lindemuth*, [178] the Supreme Court of New Mexico held that unless the use of truth drug tests gains general scientific recognition, it is not ready to accept the evidence based on that test. In *People* v. *Jones*,[179] the court seems to have taken a contrary view. In that case, the trial court, overruled the prosecutions objection as to the psychiatrist's testimony. The psychiatrist had conducted various tests on the defendant which also included truth serum interview. The court held that, this is not sufficient to exclude the psychiatrist's testimony in its entirety. The court stated that the truth of the statements revealed under Narco Analysis Test may be uncertain and inaccurate, but the results of the tests could be distinguished from psychiatrist's conclusion which is based on the results of the tests considered together.

Considering the similar issue at the federal level, US Court of Appeal for Ninth Circuit in *Lindsey* v. *US* [180] held that before a prior consistent statement made under the influence of Narco Analysis Test is admitted as evidence, it should be scientifically established that, the test is absolutely reliable and accurate in all cases. The court stated that although the utility of the test in psychiatric cases is recognised, the reliability of the test has not been established to have warranted its admission as evidence in trial. Thus, the test results were held inadmissible on the ground of unreliability.[181]Same view was endorsed by the courts of various jurisdictions, which have reiterated that neither the test results nor the expert opinion based on the Truth Serum Test shall be admissible in evidence unless it is proven with verifiable certainty.[182] It is also important to note that, though *Frye* standard was rejected by some courts, still, the view that reliability of the technique is an important criterion to

178 . In *State* v. *Lindemutb*, 243 P.2d 325 (1952).

179 . 42 Cal 2d 219 (1954).

180 . 237 F. 2d 893 (9th Cir. 1956).

181. On the same ground, Circuit Court refused to admit Narco Analysis evidence in *US* v. *Swanson*, 572 F. 2d 523 (5th Cir. 1978). In that case, two persons were convicted on the charge of extortion and conspiracy. At the trial stage they testified that they suffer from amnesia and are unable to recall the alleged criminal acts. To prove their version they sought to admit their tape recorded interview with a psychiatrist under the influence of sodium amytal, which was refused by trial court and US Court of Appeal, Fifth Circuit Court, on the ground of lack of scientific consensus as its reliability. See also, *US* v. *Solomon*, 753 F. 2d 1522 (9thCir. 1985), wherein the US State Court of Appeals, Ninth Circuit Court, followed *Lindsey* and distinguished between statement made during Narco Analysis and subsequent statement made by him before trial court. See also Andre A. Moenssens, "Narco Analysis in Law Enforcement," Vol. 52, Journal of Criminal Law, Criminology and Police Science, November-December 1961,pp. 453 -458 at p.456.

182. *Cain* v. *State*, 549 S.W. 2d 707(1977); *State of New Jersy* v. *Daryll Pitt's,* 56 A. 2d 1320 (NJ 1989).

determine the admissibility of scientific evidence is endorsed in the case of admissibility of evidence based on Narco Analysis Test.[183]

A perusal of the judicial decisions in US as to Truth Serum Test discloses that, courts view as to inadmissibility of the test results was due to unreliability of the test and the expert testimony was held inadmissible either because it has not gained general acceptance of the scientific community or that the prejudicial effect outweighs its probative value due to violation of evidentiary rules.[184] Thus most of the legal issues identified, are linked with right to fair trial of the accused.

At the same time there are juristic opinions which state that the test results must be admitted for limited purposes like testing the sanity of the examinee or when the character of the examinee is in issue etc.,[185]and also without any restrictions.[186] After 9/11 the official position seems to be more in favorable of Narco Analysis Test.[187] It may be stated that as far Narco Analysis is concerned, though courts admits its utility as a psychiatric test, refuses to allow it in court room.

183 . In *Harper* v. *State*, 249 Ga. 519(1982), the Supreme Court of Georgia rejected *Frye* standard due to its impracticability in evaluating novel scientific techniques. But Court opined that the results of truth serum test and expert testimony based on it would be admissible in evidence only if it is proven with verifiable certainty.

184. *supra* n. 40 at p.260.

185. Richard C. Frasco, "Polygraphic Evidence: The Case for Admissibility Upon Stipulation of the Parties," Vol. 9, Tulsa Law journal, 1973,pp.250-267 at p.251; Gagnieur, "The Judicial Use of Psychonarcosis in France," Vol. 40, Journal of Criminal Law and Criminology, I949-1950, pp. 370-380 at pp.372-373, available at http://scholarlycomm ons.law.northwestern. edu/cgi/viewcontent.c gi?article=3694&context=jclc (accessed on 05/09/2017). For a judicial view supporting the admissibility of such Tests, see, *Boeche* v. *State*, 37 N.W.2d 593, 597 (I949). See also, Helen Silving, "Testing of the Unconscious in Criminal Cases," Vol. 69(4), Harvard Law Review, February 1956, pp. 683-705 at p.695.

186. See Streeter and Belli, "The "Fo11rth Degree": The Lie Detector", 5 *VAND. L. REV*.549 (1952) ;) cf Foot note 9,Skolnick, Jerome H., "Scientific Theory and Scientific Evidence: An Analysis of Lie-Detection," Vol.70(5),Yale Law Journal, April 1961,pp.694-728 at p.695.It was observed that "the courts wholesale exclusion of lie-detector test-results, for want of scientific acceptance and proved reliability, is not supported by the facts."

187. Lee Adamich, "The Selected Cases of Myron the Bright: 30 Years of His Jurisprudence", 83 Minn.L. Rev. 239 as cited in Arvindeka Chaudhary, "Admissibility of Scientific Evidence Under Indian Evidence Act 1872," (Ph.D. Thesis, Department of Laws, Gurunanak Dev University, 2014), p.86, available at http://shodhganga.inflibnet.ac.in/handle/10603/102549 (accessed on 12/09/2017).

### *6.6.2 Position in India*

Prior to *Selvi,*[188] High Courts have only considered the constitutionality of investigative use of Narco Analysis Test. The courts have held that the investigative use of the test does not violate Fundamental Rights and Human Rights of the accused. In *Selvi*, the apex court held that, if any recovery is made under Sec 27 Indian Evidence Act, only so much of the statement as is distinctly relates to the fact so discovered is admissible. It may be stated that the expert report may even otherwise be admissible under Section 293 of The Code of Criminal Procedure. In *Selvi*, Narco Analysis Test results were held inadmissible on the grounds of reliability and violation of human rights.

#### *6.6.2.1 Validity of Confessions Made by Persons in Semiconscious Condition*

With respect to Tests other than Narco Analysis, this issue will not come**.** In the case of all other tests, the person is in conscious condition. But in the case of Narco Analysis, the person gives answers in a sedative condition or in dazed or semi conscious condition. Hence the question may arise whether such confession or statement is admissible in evidence. This issue was considered in a work published by Anish Pillai.[189] The author states that the argument that confession made by a person in half conscious state is invalid, is not sound, because as per Section 29 of Indian Evidence Act, confession obtained under similar circumstances is valid.[190] Section 29 states that a confession which is otherwise relevant, does not become irrelevant merely because it is made under promise of secrecy, or in consequence of a deception practiced on him for the purpose of obtaining it, or *when he was drunk,* or because it was made in answers to questions which he need not have answered, whatever may have been the form of those questions, because he was not warned that he was bound to make such confession, and that evidence of it might be given against him. [191] Thus it seems that as per the scheme of Evidence Act, confession

188 . (2010) 7 S.C.C. 263.

189. Anish Pillai, " Narco Analysis as a Tool for Criminal Investigation: A Critique of *Selvi's* Case," Vol. XXXIV ( 3&4), Cochin University Law Review, September- October 2010, pp.353-367 at pp. 358-359.

190 . *ibid.*

191. The rule of admission in civil cases as laid down in Section 23 of Indian Evidence Act, 1872, is not applicable to criminal cases. As far as confession is concerned, if it is found to be true, there is no bar to its use against the person confessing nor its admissibility is affected by reason of any promise not to reveal it or because it was obtained by fraud or deception. Inducement

obtained by intoxicating the accused is relevant.[192] It appears that law is much concerned only to see that confession is free and voluntary and if this is so, it does not matter that the accused confessed under intoxication.[193] Thus, if the above mentioned modes of collection of evidence are permitted, then collection of evidence by Narco interrogation also must be permitted.[194]

There are some US and English decisions regarding the issue validity of confession during sleep. During sleep the faculty of judgment is completely suspended as in the case of Narco interrogation. So principle laid down in these cases may be of useful. *Sarkar on Law of evidence* states that statement made while talking in sleep, though seems not as legal evidence against him may be valuable as indicative evidence.[195] On the analysis of the authorities on Evidence Law and also case laws and statutory provisions, it may be stated that investigatory use of Narco Analysis may be permitted.

A perusal of the judicial decisions in US and India as to the Truth Serum Test discloses that, courts view as to inadmissibility of the test results was due to unreliability of the test and the expert testimony was held inadmissible either because it has not gained general acceptance of the scientific community or that the prejudicial effect outweighs its probative value or that it violates Human Rights. These issues are linked with right to fair trial of the accused. Though courts and juristic view agree that the test may be used as a psychiatric test, they have disagreement as to its evidentiary use in trial. On the analysis of the authorities on Evidence Law and also case laws and statutory provisions, it may be stated that though evidentiary use of the test is not warranted, investigatory use of Narco Analysis may be permitted with proper safeguards.

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relating to any collateral matter unconnected with the charge does not make the confession inadmissible. So the only point for consideration is, whether the confession is voluntary or not. The general rule is that illegality of the source of evidence of the use of deception or immoral practice in obtaining an evidence, does not affect its reception. See, *supra* n. 56 p.800.

192 . Avtar Singh, *Principles of Law of Evidence*, Central Law Publications, Allahabad, ( 21st edn.,2014),p.173.

193 . *R* v. *Salisbury*, (1835) 7 C& P 187 cf *id.* at p.174.

194 . *supra* n. 189.

195 . *supra* n. 56.

## 6.7 Admissibility of Evidence Based on Brain Fingerprinting

Brain Finger Printing is prominent only in USA. In India, Raksha Shakthi University in Gujarat is conducting research studies on this test.[196]

### *6.7.1 Position in USA*

The US Courts have considered the admissibility of Brain Fingerprinting Test results and have stated several legal reasons for its inadmissibility. The reasons are unreliability of the test, non-satisfaction of Rule 702 of FRE by the test results and lack of probative value of the results of the test. All these reasons are linked to right to fair trial. In *Johnson* v. *State*,[197] the Supreme Court of Georgia considered the admissibility of Brain Fingerprinting Evidence in post-conviction stage. In this case, court refused to admit Brain Fingerprinting evidence stating that there is lack of materials substantiating the reliability of the technique.[198] The Supreme Court of IOWA in *Terry Harrington* v. *IOWA*,[199] had held that evidence based on Brain Finger Printing is admissible in courts. In that case, the accused was charged with murder. Dr Lawrence Farwell conducted Brain Fingerprinting Test on the accused. The test revealed that he was innocent. However, retrial was ordered not on Brain Finger Printing evidence, but on other grounds and he was acquitted eventually. In this case, the judge had admitted the evidence only for post-conviction relief and hence this ruling carries little precedential value.[200]

In *Slaughter* v. *State of Oklahoma*,[201] Slaughter was convicted and sentenced for death. He applied for post-conviction relief based on Brain Fingerprinting evidence. Court refused to admit the evidence on the ground that Brain Fingerprinting evidence could not survive *Daubert* analysis. In that case the expert, Farwell had only filed a bare affidavit unaccompanied by any comprehensive report.

196. "Raksha Shakti University (RSU), a Premier Forensic Science Research University, became the First Institute in India to Receive Brain Wave Science's Brain Finger Printing Technology," Business Wire, November 17, 2015, available at http://www.businesswire.com/news/home/20151117006275/en/Raksha-Shakti-University-RSU-Premier-Forensic - Research ( accessed on 26/10/ 2017).
197. 647 S.E.2d 48 (Iowa 2007).
198. *supra* n. 40 at p. 252.
199. 659 N.W.2d 509 (Iowa 2003).
200. Dominique J. Church, "Neuroscience in the Courtroom: An International Concern," Vol.53, William and Mary Law Review, 2012, pp.1825-1854 at p. 1839.
201. 105 P.3d 832 (2005).

Hence the court held that the claims made in Dr. Farwell's affidavit were "unconvincing and legally insufficient" for being admitted under *Daubert* Criteria. The court observed that "failure to provide such evidence to support the claims raised can lead to no other conclusion … but that such evidence does not exist."[202] Regarding this decision, Julie Elizebeth Myers, in her article states that, by disallowing Brain Fingerprinting evidence to be admitted merely on grounds that the expert failed to supply the comprehensive report, the court has left open the possibility of reliable neuro imaging techniques to enter court room as admissible evidence.[203]

Thus the legal issues identified by the courts as to Brain Finger Printing evidence are, failure to satisfy evidentiary standards like *Daubert* criteria and lack of reliability. It seems that the judiciary is more likely to admit both favorable and unfavorable test results, if the test satisfies *Daubert* criteria and provide more safeguards.

### 6.7.2 *Position in Australia*

The issue as to admissibility of Brain Finger Printing Test, has not been considered by the courts in Australia.[204] However many authors[205] have considered the issue of admissibility of Brain Finger Printing in criminal investigation and trial in Australia. The main concern which was expressed as to the admissibility of Brain Finger Printing evidence is about its reliability and accuracy,[206] as it is solely patented. Lack of independent testing and corroboration was also expressed as concerns. It is opined that there are no qualified experts in the country and the results of the technique may also invade too closely upon jury's role in determining

202. *id.* at p.835.
203. Julie Elizabeth Myers, "The Moment of Truth for FMRI: Will Deception Detection Pass Admissibility Hurdles in Oklahoma?," Vol.6, Oklahoma Journal of Law and Technology, 2010, pp. 1-59 at p.22, available at http://docplayer.net/25090713- (accessed 05/09/2017). The author states that still, this decision did not directly denounce the possibility of neuro imaging technologies satisfying *Daubert.*
204. Danielle Andrewartha, "Lie Detection in Litigation: Science or Prejudice?," Vol. 15(1) Psychiatry, Psychology and Law, March, 2008, pp. 88-104 at p.94.
205. Kelly Dickson and Marilyn McMahon, "Will the Law Come Running? The Potential Role of Brain Fingerprinting in Crime Investigation and Adjudication in Australia," Journal of Law and Medicine, December, 2005, pp.204-222 at pp.213-214.
206. *id.* at p. 217.

credibility and the ultimate issue.[207] Hence, any attempt to introduce the Test results in court as evidence will be premature.[208] Regarding its utility in investigation, the juristic opinion is that criminal investigation being a costly expenditure and much time and resources are required, Brain Finger Printing may be of much utility in this regard as this test monitors brain wave response "online and in real time."[209] Hence investigation will not be delayed for waiting for comparisons of evidence and processing of the results in the laboratory.[210]

As common knowledge rule and ultimate issue rules which were relied, for holding Polygraph evidence as inadmissible had been abolished, it may be stated that the crucial barriers as to the admissibility of evidence in the nature of Forensic Psychological Tests have been removed. This may provide a path way for this evidence in court rooms in Australia in future.

### *6.7.3 Position in Canada*

No case on neuro imaging as investigative technique has come before the court, Soren Frederiksen in his work states that if a technique does not provide evidence as to credibility of witness but instead provide different evidence, it may become admissible.[211] He also stated that, the tests which are not analogous to Polygraph may not be banned as per the dictums of *Phillion* and *Beland*.[212] He states that the grounds like bolstering credibility of witness, oath helping and character evidence rule etc. are applicable only to Polygraph Test[213] and this is not applicable to Brain Fingerprinting Test.[214] Therefore *per se* ban of all Forensic psychological

207. *ibid.*
208. *id.* at p.218.
209 *id.* at p.219.
210 . *ibid.*
211. *supra* n. 144 at p.126.
212. *ibid.*
213. *ibid.*
214 . Hence it will not be applicable in the case of BEOS and LVA also. No statement is made by the person in the case of BEOS and Brain Finger Printing. In this article Soren Frederiksen, regarding Brain finger printing, states that if we look through the four criteria that justice McIntyre used to exclude the Polygraph from the courtroom in *Beland*, none of them apply to Brain Fingerprinting. The expert witness here says nothing about the credibility of the accused or about his or her character. As there is no statement, it cannot violate the rule against past consistent statements or the rule against oath helping. Finally, the expert witness makes no claims about the credibility or reliability of witness testimony, there is no violation of the role of the expert witness. Brain fingerprinting is distinguishable from the Polygraph, and the

Tests is not appropriate. He also suggests that it is desirable that there is regulation in this regard.

### *6.7.4 Position in India*

In India, Brain Finger Printing has not become much prominent. In *Selvi*, apex court discussed the procedure formalities and the case laws pertaining to Brain Finger Printing while analyzing the constitutional validity of BEOS Profiling Test. It seems that regarding the admissibility of Brain Finger Printing Test also, court may take same view as that of BEOS Test. Court disallowed BEOS Test on the ground that it failed to satisfy *Daubert* Criteria.

It may thus be stated that only in USA, Brain Finger Printing Test is prominent. The legal issues identified by the courts as to Brain Finger Printing evidence are, failure to satisfy evidentiary standards like *Daubert* criteria and lack of reliability. It seems that the judiciary is more likely to admit both favorable and unfavorable test result, if the test satisfies *Daubert* criteria and provide more safeguards. In Australia, Canada and India, no direct case laws on Brain Finger Printing has come so far. Academic view in Australia is that if the test is admitted, the legal issues like reliability and accuracy, lack of validation studies and non satisfaction of evidentiary standards may be raised as concerns. At the same time there are also opinions that, as some Australian Jurisdictions have abolished exclusionary rules like ultimate issue rule, it may result in more positive attitude towards admissibility of this evidence in that country. In Canada also the juristic opinion is that as this technique does not provide evidence as to credibility of the witness, but instead provide different evidence. Hence dictums in *Beland* and *Phillion* will not apply and the test results may become admissible. In India, it seems that approach of court towards this test may be same as that of BEOS Test.

decision in *Beland* is therefore not applicable. Brain fingerprinting is thus prima facie admissible. See, *ibid.*

## 6.8 Admissibility of Functional Magnetic Resonance Imaging (FMRI) Evidence

### *6.8.1 Position in USA*

The admissibility of FMRI evidence was considered in *Wilson* v. *Corestaff Servs LP*.[215] In that case, Carestaff servs had moved to preclude Wilson's expert testimony based on FMRI to bolster the credibility of key witness who testified as to an alleged retaliatory statement. Wilson opposed the motion and sought *Frye* hearing to assess reliability of the technique. The court stated that there is no reported decision as far as this technique is concerned. The court held that credibility is a matter solely within the province of jury. Court also held that plaintiff has failed to establish that FMRI technique's utility to determine truthfulness or deceit was accepted as reliable in the relevant scientific community. Thus in this case, the legal issues identified by the court are, usurping the function of jury by FMRI Test results and also lack of reliability which have bearing on right to fair trial.

The full-fledged evaluation of FMRI evidence was made by the court in *US* v. *Semarau.*[216] This was the first case in which the court made an evaluation as to the scientific reliability and admissibility of FMRI technique in criminal Justice settings. In this case, Semrau was charged with fraud and money laundering. The trial court excluded expert testimony based on FMRI, stating that the test did not satisfy the requirements of Rule 702 of FRE and lacked probative value. The *Daubert* hearing was conducted and *Daubert* analysis was made by the court. On analyzing the factors like testing and peer review factors of *Daubert*, the court found that the underlying theory behind FMRI lie detection were capable of being tested at least in the laboratory settings and it is subjected to some peer review and publication. Regarding the second stage, the court considered the known and potential error rate and existence of the maintenance of standards of the technique. As there was lack of real life error rates and lack of controlling standards for the real life examinations, the court held that the test do not satisfy the second part of the analysis. The court also analyzed the general acceptability of the test in the scientific community and held that due to its recent development, FMRI based test has not yet

215. 900 N.Y.S. 2d 639 (2010).
216. 543 U.S. 1136 (2005).

gained acceptance by the relevant scientific community. On evaluation under Rule 403, the court held that prejudicial effect of the FMRI evidence outweighed its probative value. The court also held that if the evidence is admitted, it would violate the jury's role in determining the credibility of the witness. In this case, the court has refused to admit evidence favorable to the accused. Though court excluded the evidence is inadmissible, the judge noted that he could foresee a time in the future when the evidence becomes admissible.[217] The judge might have made his opinion on the presumption that the FMRI based lie detection would eventually undergo further testing's, development and improve the standards controlling the techniques operation and gain acceptance by the scientific community for use in the real world.[218] Thus it seems that, in future FMRI Test results may find acceptance in court room.

### *6.8.2 Position in Canada*

Though no case of Neuro Imaging Tests as investigative technique has come before the court, there are some scholarly opinions which state that FMRI technique satisfies all the *Daubert* criteria.[219] For instance, Jared Craig and David Wachowich, in their work have stated that to have a reliable foundation, a scientific theory must be testable. Discrete theories about the relationship between particular brain states and behavior based on FMRI Imaging are also subject to rigorous testing and are reviewed in thousands of articles presented in leading medical journals. Regarding error rate they stated that, in the criminal law setting, any allowance for "error" must be weighed against the risk of wrongful conviction. Thus little allowance for error is appropriate where the prosecution presents science that speaks to ultimate or dispositive issues. In Canada acceptance in the scientific community is only one factor to admissibility. The Supreme Court of Canada has expressly rejected the "general acceptance" test, and Canadian law does *not* require total consensus. Moreover the trend of the court is positive towards admissibility of this evidence when evidentiary rules are relaxed as in the case of sentencing.[220]Juristic opinion is that with proper regulation, these tests may be admitted.[221]

217 . *ibid.*
218. *ibid.*
219. Jared Craig and David Wachowich ,*supra* n. 49 at p.25.
220. See also, *Sexton v. State*, 775 So. 2d 923 (Fla 1997).
221. *supra* n. 144 at p.119.

### *6.8.3 Position in India*

FMRI Test is not prominent in India. High Courts have never considered the constitutional validity of this test. In *Selvi,* the apex court discussed the procedure and legal formalities pertaining to this test while considering the constitutional validity of BEOS Profiling Test. It seems that view of the court regarding this test also may be same as that in the case of BEOS Profiling Test.

It may thus be stated that only in USA, the test is prominent in criminal investigation settings. The legal issues identified by the US courts regarding the admissibility of this test is based on the grounds of reliability, violation of exclusionary rules like ultimate issue rules and also failure to satisfy *Daubert* Criteria. However courts also express the view that they could foresee a time in the future when the evidence becomes admissible. This means that court is optimistic that with further research in this field, the reliability of the test may be established and the evidence may find acceptance in court room. Academic opinion in Canada is that the test may satisfy *Daubert* Criteria and with proper regulation, it may be admitted in evidence. In India, the test is not prominent and it seems that view of the court regarding this test also may be same as that in the case of BEOS Profiling Test.

## 6.9 Admissibility of PSE and LVA Evidence

### *6.9.1 Position in USA*

As far as LVA[222] and PSE[223] are concerned, it seems that admissibility of PSE test results also meet the same fate as the admissibility of Polygraph. In *John Henry Smith* v. *State of Maryland,*[224] the Mary Land Court of Special Appeal, rejected PSE evidence on the ground that PSE is also like Polygraph evidence and as Polygraph evidence is inadmissible same should be fate of PSE. However, there are certain other cases where courts have admitted the PSE Test result. For instance in *State* v. *Brumbly,*[225] the confession given in pursuance of PSE Test was admitted in evidence by the Supreme Court of Louisiana. The PSE's mixed validation studies have also affected its admissibility in court. As long as PSE fails to gain general

222 . Hereinafter referred to as Layerd Voice Analysis Test.
223 . Hereinafter referred to as Psychological Stress Evalautor.
224. 355 A.2d 527 (1976). The same view was also taken in *State* v. *Schouest,* 351 So. 2d 462 (La. 1977), and the court refused to allow favourable PSE Test result.
225 . 320 So. 2d 129 (La. 1975).

acceptance of the relevant scientific community, it seems difficult to get admissibility in court.[226] In some cases courts have allowed results of Polygraph Tests to be admitted into evidence based on the stipulation between the parties. It is argued that the same may be extended with respect to PSE Test results also.[227]

Analysis of case laws reveals that most of the legal issues relating to PSE reveal that they are confined to the issue of reliability of the test, lack of general acceptance of the test by the scientific community and failure to comply with evidentiary standards. It is important to note that as early as in 1982, New Mexican Court of Appeals has held that PSE evidence is admissible in trial.[228] The court held that the trial court may admit the PSE evidence in his discretion, if the proponent of the test satisfies the conditions of qualifications of the examiner, the reliability and the validity of the test. It is also important to note that recently a federal court has approved the use of CVSA[229] test to monitor sex offenders.[230] Though LVA and PSE are purely noninvasive tests, because of lack of validation studies and also due to lack of reliability of the tests generally courts are reluctant to admit these tests. However recent trend seems favorable. If certain safeguards are in place courts seems receptive to admit these tests.

### *6.9.2 Position in India*

As far as LVA / PSE test is concerned, the main criticism is that the test may be conducted even without his knowledge. At this juncture, the decisions as to admissibility of tape recorded conversations are relevant.[231] The tape recorded

226. Kenety, William H. "The Psychological Stress Evaluator: The Theory, Validity and Legal Status of an Innovative 'Lie Detector'," Vol. 55 (2), Indiana Law Journal, 1979, pp.349- 374 at pp.365-367, available at http://www.repository.law .indiana.edu/cgi/view content.cgi?article =3466 & context=ilj (accessed on 05/09/2017).
227. The cases which allow stipulated Polygraph test results fall into two categories. Those which expressly authorizes admission by stipulation and those which impliedly permit it. *id.* at pp.361-363.
228 *Simon Neustadt Family Center, Inc*. v. *Bludworth*, 641 P.2d 531 (Ct. App. 1982).
229. Herein after referred to a Computerised Voice Stress Analysis.
230. Federal Judge Approves Non-Polygraph Technology to Monitor Sex Offenders: US District Court Decision Validates CVSA Technology for Federal Agency Use, CISION, PR newswire, March 11,2014, available at http://www.prnewswire.com/news-releases/federal-judge-approves -non-Polygraph-technology-to-monitor-sex-offenders-249424721.html (accessed on 25/06/2016).
231 . *Yusufalli Esmail Nagree* v. *The State of Maharashtra*, A.I.R.1968 S.C. 147, *R.M. Malkani* v. *State of Maharashtra*, A.I.R.1973S.C.157, wherein the petitioners voice was recorded in the course of telephone conversation, while he was attempting to blackmail. *PUCL* v. *Union of India*, A.I.R. 1997 S.C. 568, court has not stated that telephone tapping by the police is

conversation is admissible in evidence if it is relevant to the fact in issue, unless the conversation is tampered.[232] The Supreme Court in *N. Sri Rama Reddy* v. *V.V. Giri*,[233] held that like any document, the tape record is a direct and primary evidence of what has been said.[234] In *K. K. Velusamy* v. *N Palanisamy*,[235] the apex court while interpreting Section 3 of Indian Evidence Act and Section 2(t) of Information Technology Act, 2000, held that a compact disc containing recording of a telephonic conversation would be valid and admissible evidence

In *State of Maharashtra* v. *Prakash Vishnurao Mane*,[236] the court observed that, tape recorded statement could be used not only for corroboration, but also to contradict the witness, to test the *veracity* of the witness and also to impeach his impartiality and held that once the statement is corroborated, the evidence would be admissible with respect to the other three purposes.[237] In many cases[238] the apex court had held that even if the voice of the person is recorded without the knowledge of the person, it is admissible in evidence. The court had arrived at this decision by

absolutely prohibited, as the same may be necessary in some circumstances in order to prevent criminal acts and in the course of investigation. This means that such intrusive practices are permissible if done under a proper legislative mandate that regulate their use.

232 . Ss.7 and 8 of The Indian Evidence Act. The time, place and accuracy must be proved by a competent witness and the voice sample must be corroborated .See also, Shaik Mohammed Ismail, "A Critical Analysis on Telephone Tapping Conversation," Vol.1(6), Research Journal of Computer and Information Technology Sciences, November 2013, pp.1-6 at p.2, available at http://www.isca.in/COM_IT_SCI/Archive/v1/i6/1.ISCA-RJCITS-2013-027.pdf (accessed on 31/07/2015).

233. A.I.R. 1971 S.C. 1162.

234 . Same view was reiterated in *R.M. Malkani* v. *State of Maharashtra*, A.I.R.1973 S.C.157 and in *Ziyauddin Buhanuddin Bukhari* v. *Brijmohan Ramdas Mehta*, A.I.R. 1975 S.C. 1788.

235. (2011) 11 S.C.C 275. In *Ram Singh* v. *Col. Ram Singh*, A.I.R. 1986 S.C. 3, the court held that tape recorded conversation would be admissible in evidence, if certain conditions are satisfied. This case arised from an election trial and the Court examined the question of admissibility of tape recorded conversations .The Court laid down that a tape recorded statement would be admissible in evidence subject to the following conditions.( i).The voice of the speaker must be duly identified by the maker of the record or by other who recognize his voice. In other words, it manifestly follows as a logical corollary that in the first condition for the admissibility of such a statement is to identify the voice of the speaker. Where the voice has been denied by the maker it will require very strict proof to determine whether or not it was really the voice of the speaker.( ii). The accuracy of the tape-recorded statement has to be proved by the maker of the record by satisfactory evidence-direct or circumstantial. (iii) Every possibility of tampering with or erasure of a part of a tape recorded statement must be ruled out, otherwise it may render the said statement out of context and, therefore, inadmissible. (iv) The statement must be relevant according to the rules of Evidence Act. (v) The recorded cassette must be carefully sealed and kept in a safe or official custody.( vi) The voice of the speaker should be clearly audible and not lost or distorted by other sounds or disturbances."

236. (1977) 79 BOMLR 217.

237. Under Section 146(1), Exception 2 to Section 153 and Section 155(3) of the Evidence Act

238. *Yousafalli Esmail Nagari* v.*State of Maharashtra*, A.I.R. 1968 S.C. 147.

following the reasoning in *R.* v. *Leatham.*[239] It was observed that, "It matters not how you get it if you steal it even, it would be admissible in evidence. As long as it is not tainted by an inadmissible confession of guilt evidence even if it is illegally obtained is admissible."[240] Applying the same dictum, investigative use of LVA Test may not be considered as illegal.

In *Sahoo* v. *State,*[241] a confessional soliloquy is held as direct piece of evidence, but could be used only for corroboration.[242] It thus seems that only test for admissibility of a statement, is whether it is voluntary or not and if the answer is in affirmative, it is admissible in evidence.[243] Thus as per the scheme of Indian Evidence Act, a confession made to any person which is relevant does not become irrelevant merely because of promise of secrecy, practice of deception etc.[244] This means that even if the voice is recorded without the knowledge of the person making it, it is admissible as per the scheme of Indian Evidence Act. Therefore, as per these decisions, the statement made under LVA Test is admissible in evidence.

It is important to note that, in LVA/PSE Test, the content of the statement is not produced as evidence, only the brain activity behind each strata of voice as analyzed by the expert is considered and that report is produced as evidence in court and expert also gives his opinion in the court. Recent trend of judiciary in foreign jurisdictions which are comparable to that of India is to admit such evidence.[245] Hence, the results of the LVA Test may be admitted in evidence as corroborative evidence.

239. (1861), 8Cox C.C.498 as cited in *R.M. Malkani supra* n. 234.
240 . *R.* v. *Maqsud Ali,* [1965] 2 All E.R. 464, it was held that, even if the confession is the result of fraud on the accused, it would be relevant. In that case, two accused persons were left in a room and they thought that they were alone. But a secret tape recorder were recording their conversation, court held that the confession is relevant. If this dictum is taken, the statements made under LVA would be admissible in evidence, even if the test is done without the knowledge of the subject.
241. A.I.R 1966 S.C. 40.
242. *supr*a n. 56 at p.800.
243 . *ibid.*
244 Indian Evidence Act, 1872, s.29.
245 . *Fingerprint lock Virgina District Court in Virgina* v. *Baust,* No. CR14-1439, WL 6709960, at p.3 (Va. Cir. Ct. Oct.28, 2014), available at https://consumermediallc .files.wordpress.com/2014/11/245515028-fingerprint-unlock-ruling.pdf (accessed on 26/10/2017).

It may thus be summed up that, as far as LVA and PSE are concerned, it seems that the tests are conducted only in US and in India. In USA, because of lack of validation studies and also due to lack of reliability of the tests, generally courts are reluctant to admit these tests. However recent trend seems favorable to the admissibility of test results. If certain safeguards are in place, the courts seem receptive to admit these tests. Moreover the trend of courts in USA in recent times is to admit this type of evidence. When Indian position is analyzed, it is found that the only test for admissibility of a statement, is whether it is voluntary or not and if the answer is in affirmative, it is admissible in evidence. Hence as per the decisions on tape recorded conversations and telephone tapping cases, the statement made under LVA is admissible in evidence. It is also important to note that, in this test the content of the statement is not produced as evidence, only the brain activity behind each strata of voice as analyzed by the expert is considered and that report is produced as evidence in court. Hence, the results of the LVA Test may be admitted in evidence as corroborative evidence.

### 6.10 Admissibility of Evidence Based on BEOS Profiling Test

Only in India, BEOS (Brain Electrical Oscillation Signature Profiling) Test is conducted. The admissibility of BEOS Test was not considered by either High Courts or Supreme Court prior to *Selvi* and it was a Sessions court, in India, in *Aditi Sharma and another* v. *State of Maharashtra,*[246] which considered the admissibility of BEOS Test. In that case the two accused were charged with murder by poisoning. First accused, Aditi was subjected to Polygraph, Psychological profiling and BEOS Test and the second accused was subjected to Polygraph. As far as Aditi was concerned, the results of Polygraph Test were positive with respect to her involvement in the crime. The BEOS Test also confirmed this by showing that she had experiential knowledge with respect to those aspects. But second accused's Polygraph test result was inconclusive. The court convicted both the accused based on circumstantial evidence. But this decision was criticized by many scholars, stating that the conviction of an accused based on BEOS Test result is arbitrary, wrong and premature.[247]

246 . In *State of Maharashtra* v. *Sharma*, C.C., No. 508/07, June 12, 2008, 1, paras. 1, 22, at 1, 18 (India) available on https://lawandbi osciences.files.word press.com/2008/12/b eosruling 2.pdf (accessed on 15/02/2015).

247. See, Dominique J. Church, *supra* n. 200 at pp.1826-1827.See also, Anand Giridharadas, "India's Novel Use of Brain Scans in Courts Is Debated," New York Times, September 14,

However it may be stated that the accused in that case was not convicted solely on the basis of Polygraph or BEOS Test result. The results were only considered as one of the links in the chain of circumstantial evidence, based on which conviction is made.[248] The court had also accepted that, the test results are not conclusive in nature. It seems that the approach of the court is not an immature one. Before *Selvi,* some other High Courts had also considered the constitutionality of investigative use BEOS Test and held that BEOS Test is not in the nature of testimonial compulsion under Article 20(3) of the Constitution.[249]

However in *Selvi* v. *State of Karnataka*, [250] the apex court held that compelling a person to undergo the tests like BEOS[251] would violate right against self-incrimination, privacy etc. Court also held that as the reliability of the test is doubtful, it would also amount to infringement of right to fair trial. However court permitted voluntary administration of the test for criminal justice perspective, if certain safeguards are in place. Even then, the test results by themselves could not be admitted as evidence. It is admissible only for the limited purpose in accordance with Section 27 of Indian Evidence Act.

In *Selvi,* the apex court has not discussed *Aditi Sharma's* case. But in *Aditi sharma's* case, the court had elaborately discussed the issues like whether Forensic Psychologist is an expert and also whether Forensic Psychology is a 'science' or an 'art' under Section 45 of Indian Evidence Act. Court had considered the all the pros and cons of the test and had held that the test though not conclusive, is admissible as corroborative evidence. It is lamentable that apex court in *Selvi,* had not considered these aspects.

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2008, available at http://www.nytimes.com/2008/09/15/world/asia/15brainscan.html (accessed on 21/10/2017).

248 . *supra* n. 246 at p.67 .The court had observed that "This court is aware that the results of these Tests are not to be treated as conclusive in the sense that on the basis of these results only, the case is not to be decided. They are just one link in the chain of circumstantial evidence, like any other evidence on which the prosecution places reliance." The court has in fact summarized a list of proved circumstances on which conviction was based. It is clear from that list that, Polygraph and BEOS Test results are only one among the link, in that chain.

249. See *Rama Chandra Reddy* v. *State of Maharashtra*, 2004 All MR (Cri) 1704.

250 . (2010) 7 S.C.C. 263.

251 . It is also important to note that, nature of BEOS test as explained in *Selvi,* is actually that of Brain Fingerprinting which was developed by Lawrence Farwell. The case laws discussed therein also pertain to Brain Fingerprinting. See, inventor's website, Axxonet, "NSS in Court," available at http://www.axxonet.pro/courses/forensic-psychology/11-forensics (accessed on 15/10/2015).

The stand taken in *Aditi Sharma* to admit BEOS Test result [252] as corroborative evidence is proper in the age of science of technology. At the same time the safeguards laid down in *Selvi* decision as to the administration of the tests must also be strictly adhered to. It seems that, as more research is taking place in arena of neuro science[253] and a comprehensive legislation governing all the Tests is the need of the hour.

## 6.11 *Daubert* Criteria and Forensic Psychological Evidence

Some scholars had vehemently argued that *Daubert* decision must be applied more rigorously to protect the rights of accused.[254] This decision had obligated the trial court to assume the role of "gate keepers" and also to exclude forensic science evidence unless it rests on scientifically valid principles and methodology. Hence it was believed that this decision has set a meaningful standard which was lacking in criminal cases and that it would serve innocent defendants.

However some scholarly works have criticised that *Daubert* has failed to produce ideal results. For instance, Munia Jabbar, in his article had stated that in the criminal justice context, *Daubert* standard has not produced ideal results.[255] He states that there are three reasons for this trend. Firstly, the defence lawyers being resource constrained are unable to manage successfully the Forensic evidence offered by the prosecution.[256] This would open the door for more misleading prosecutorial evidence leading to the likelihood of false convictions.[257]

252. Polygraph Test result also.
253. Technology Information Forecasting and Assessment Council- Directorate of Forensic Science Study Research Project, *Normative Data For Brain Electrical Activation Profiling*, Department of Science and Technology, Govt of India, New Delhi, March 2006-2008, pp.11, 70.
254 . Paul C. Giannelli, "The Supreme Court's "Criminal" *Daubert* Cases," Vol.33(4), Seton Hall Law Review , 2003, pp.1071-1112 at pp. 1072, 1073.The Committee on Identifying the Needs of the Forensic Science Community, *Strengthening Forensic Science in the United States: A Path Forward*, National Research Council, The National Academies Press Washington, D.C., USA August 2009, pp.95-96, available at https://www.ncjrs.g ov/pdffiles1/nij/gr ants/ 228091.pdf (accessed on 05/09/2017).
255 . Munia Jabbar, "Overcoming *Daubert*'s Shortcomings in Criminal Trials: Making the Error Rate the Primary Factor in *Daubert*'s Validity Inquiry," Vol.85, New York University Law Review, December, 2010, pp. 2034-2064 at pp.2046-47. See also, Jane Campbell Moriarty, "Symposium: *Daubert*, Innocence, and the Future of Forensic Science," Vol.43 (2), Tulsa Law Review, 2007, pp. 229-234, at pp. 229–230, available at https://digital commons.law.utulsa.edu/c gi/viewcontent.cgi?article=2608&context=tlr (accessed on 13/12/2017), wherein the author has given a list of scholars who discuss how judges have been lax in their gate keeping role.
256. Adam Teitcher, & Robert E. Bernstein, "Expert Witnesses, Adversarial Bias, and the (Partial) Failure of the *Daubert* Revolution," Vol.93 IOWA Law Review, 2008, pp. 451-490 at pp. 460–

Secondly, there is also high risk of jury's placing unfounded emphasis on Forensic evidence, thus worsening the risk of unfair prejudice. Thirdly, excessive flexibility in *Daubert* standards has led to its inconsistent application and unpredictable admission of expert evidence over all jurisdictions.[258] Hence Munia Jabbar states that *Daubert* standards have failed to promote the goals of trial outcome and consistency. So the author argues for reformulation of *Daubert* criteria to achieve these goals.

Since the decision in *Daubert*, both judiciary and legal scholars have raised their concerns regarding the problems of expert testimony in the behavioural sciences. For instance, Taylor S Fielding in his article, has stated that evidentiary standards as to admissibility of hard science and soft science expert evidence must be different.[259] He stated that *Daubert* criteria, especially error rate factor would apply well when dealing with hard sciences like physics, chemistry etc., than expert opinion in the cases of soft sciences which is not based on particular scientific methodology, but upon experience and training.[260] Thus even if a psychologist have no scientific credentials, but if he has specialized knowledge, skill and experience, he is a qualified expert.

Professor Jane L Ireland, in his article had also suggested for a different approach as to evidentiary standards with respect to hard and soft science expert evidence.[261] He had suggested for application of *Daubert* criteria[262] for generally accepted physical sciences and suggested Abridged *Daubert*[263] to be applied for

61, the authors opine that generally if an expert gives misleading testimony, the weakness could be exposed through cross examination. Usually the defence lacks resources to contest the prosecutions scientific testimony, which would result in false convictions. See also, D. Michael Risinger, "Innocents Convicted: An Empirically Justified Wrongful Conviction Rate," Vol.97, Journal of Criminal Law and Criminology, 2007, pp.761-806 at pp. 778–80.

257 . *Strengthening Forensic Science in the United States, supra* n. 254 at p. 97.

258 . Munia Jabbar, *supra* n. 255.

259. Taylor S. Fielding, "Evidence Issues in Indian Law Cases," Vol. 2 (1), American Indian Law Journal, 2013, pp. 285-308 at pp.290-291, available at http://digitalco mmons.law.seattle u.edu/ailj/vol2/iss1/2 (accessed on 07/09/2017).

260. *ibid.*

261. *supra* n. 29 at pp.15-17.

262. *ibid*.

263. *ibid.* Abridged-*Daubert* is, admittedly, a lower level of reliability testing but would allow decision-makers to form their own view as to evidence quality and avoid comparison to the more easily measurable physical sciences.

novel physical science and social behavioural science evidence. He also proposed[264] for increased involvement by experts in critically reviewing their own evidence and also to provide statements of limitations. He suggested for adopting this approach for the UK legal system. The same criteria may be apt for Indian legal system also.

The British Psychological Society in their response to the Law Commission as to the admissibility of Psychological expert evidence in criminal proceedings,[265] also confirms that psychological testimony may be scientific and experience based. The society opined that evidentiary standards of experience based evidence must differ from that of scientific evidence.

At this juncture, it is important to note that even in *Kumho Tyre* case[266], wherein court held that *Daubert* criteria has to be applied to all field of study, has stated that *Daubert*'s guiding factors were "meant to be helpful, not definitive," and that trial courts have discretion in deciding whether or not evidence is admissible, because that determination is largely fact-dependent.[267] Hence, the notion that the *Daubert* factors must be applied to every case was categorically rejected.[268]

Even in USA, *Daubert* test is not uniformly applied in all the states. Statistics regarding the application of the standards have shown that the state courts are divided in this aspect, especially between *Frye* test and *Daubert* test.[269] Hence it may

264. *ibid* at pp.17-21.

265. Law Commission in England had recommended two prong tests of relevance and reliability for the admissibility of the expert evidence in criminal proceedings. The British Psychological Society (BPS) had made its response to the law commission as to the admissibility of Psychological expert evidence in criminal proceedings. Regarding relevance, BPS has no difference of opinion. But they have difference of opinion with respect to judge's capacity to test the reliability which requires much education and training. This would really depend on choice and interpretations made by the experts working in that specialty. Hence BPS opined that, assessing reliability of the scientific test without the aid of the expert is not practical. See,*Expert Evidence Consultation Responses*, submitted at the request of the Ministry of Defence and on behalf of the independent Service Prosecuting Authority, England, 2015, pp. 1-85 at p.16, available at, https://s3-eu-west-2.amazonaws.com/lawcom-prod-storage-11jsxou 24uy7q/ uploads/2015/03/cp190_Expert_Evidence_Consultation_Responses.pdf (accessed on 07/09/ 2017).

266 . *Kumho Tyre Co.* v. *Carmicheal*, 526 U.S. 137 (1999).

267 . *ibid.*

268 . *ibid.*

269 . Dinakar in his work, quoting Alice B Lustre, has stated that twenty five states in USA use *Daubert* or similar test. Fifteen states and District of Columbia use *Frye* test. Six states have not rejected *Frye* but incorporate *Daubert* like analysis. Four states have developed their own Tests. *supra* n. 40 at p.163.

be stated that with respect to Forensic Psychological evidence, *Daubert* test as such need not be applied. Corroboration must be made as the only requirement for admissibility and is to be determined on case by case basis. Invasive Tests like Narco Analysis may be used only as investigative aid.

## 6.12 Conclusion

Fair trial encompasses in itself all rights of the accused from the stage of arrest till execution of sentence. However, the study is confined to evidentiary aspects, as one of the main issues with respect to Forensic Psychological Tests is with respect to its admissibility as evidence in trial. The object of admissibility tests itself is to interpret and apply the rights of the accused. Evaluation of admission and exclusion of evidence plays an important part in determining how balance has to be struck between the admissibility of evidence and protecting the rights of the accused. It is found that the legal system of all the common law countries have their own admissibility criteria to evaluate the evidentiary value of any scientific evidence which is applicable in the case of Forensic Psychological evidence also. In India corroboration is the only requirement for admissibility of any scientific evidence including Forensic Psychological evidence. The object of these admissibility standards is to exclude Forensic evidence unless it rests on scientifically valid principles and methodology and thus protect the rights of innocent accused.

The analysis of case laws regarding admissibility of evidence of all the Forensic Psychological Tests in all the countries reveal that, the case laws mostly pertain to polygraph evidence. Judicial skepticism regarding all these tests in all the countries is mainly on the grounds of reliability and violation of exclusionary rules. Courts in Canada and Australia do not admit the test results. Only courts in USA and India admit the test results. In USA, regarding polygraph admissibility, courts in state jurisdictions adopt three divergent views, per se inadmissibility, admissibility by stipulation and per se admissibility, Narco Analysis is generally held inadmissible. Though evidence based on FMRI and Brain finger printing are presently held as inadmissible, the courts themselves have expressed the possibility of their allowance

in future. The evidentiary value of the tests are analyzed in the light of *Daubert* criterion and amended FRE. In India, the test results are admitted in favor of prosecution for the limited purpose in accordance with Section 27 of Indian Evidence Act.

The study also reveals that the courts do not make any distinction between favorable and unfavorable test results while determining admissibility of evidence. The legal standards governing admissibility has its objective to ensure fair trial rights of the accused. But when a favorable test result is rejected on these grounds, it may do more injustice to the accused than doing justice. It may affect his valuable right to present defense, if that evidence is the only one in his favor. The analysis of case laws in US jurisdictions wherein the test results are mostly admitted, it is found that if proper safeguards like stipulation, regulation, presence of lawyer, qualified experts are ensured, the courts are willingly accepting the test results. The courts in all the countries are unanimous as to the utility of these tests as investigative aid and their only difference of opinion is regarding their admissibility in trial. Academic opinion in all the countries are also in favor of admitting the tests results, especially in the light of abolition of some of the exclusionary rules like ultimate issue rules in countries like Canada, Australia etc. It may also be stated that as *Daubert* test has failed to achieve the objective of promoting the human rights of the accused, strict application of *Daubert* criteria for admissibility of Forensic Psychological evidence is not desirable. Therefore, Corroboration must be made as the only requirement and admissibility of these tests is to be determined on case by case basis. Hence it may be stated that assimilation of non-invasive Forensic Psychological Tests with proper regulation and safeguards would ensure human rights of the accused than per se inadmissibility of the test results. Regarding invasive Tests like Narco Analysis, its investigatory use may be permitted with proper safeguards like informed consent, presence of lawyer, video graphing entire procedure etc.

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# Chapter - VII

# FORENSIC PSYCHOLOGICAL TESTS AND EVIDENTIARY BARRIERS ENSURING FAIR TRIAL

There are two types of evidentiary barriers as to the admission of relevant evidence which ensures right to fair trial of the accused. They are

(i) The evidentiary barriers to the admission of evidence which are believed to impede with fact finding process, as in the case of hearsay evidence and

(ii) The barriers to the admission of evidence which are imposed for reasons extraneous to fact finding process. These exclusionary barriers give emphasis to the circumstances in which the evidence is collected, wherein the probative value of the evidence is outweighed by its prejudicial impact.

This chapter analyses both the evidentiary barriers. The chapter also examines the criteria adopted by different common law countries in dealing with such evidence and makes a comparative analysis with the position in India.

It is important to note that international human rights instruments like Universal Declaration of Human Rights, 1948 and International Covenant on Civil and Political Rights, 1966, not only provide for right to fair trial but also provide for effective remedy for violation of the same.[1] The UN Guidelines on the Role of Prosecutors, 1990, provide for exclusion of evidence obtained as a result of torture or coercion including confessions by the defendant.[2]

The Rome Statute of International Criminal Court, 1998, provides that evidence obtained in violation of the statute or internationally recognised human rights shall not be admissible in evidence, if the violation cause "substantial doubt on

1. The Universal Declaration of Human Rights, 1948, Article 8. The International Covenant on Civil and Political Rights, 1966, restricts in Article 2(3) the right to an effective remedy at law to a redress only of the rights and freedoms recognised by the Covenant itself. It is generally left up to the State Parties concerned to choose the method of implementation in their countries within the framework of the Covenant. Article 14 of The International Covenant on Civil and Political Rights, 1966, also recognizes the right of access to courts.
2. UN Guidelines on the Role of Prosecutors, 1990, Guideline 16.

the reliability of evidence or if the admission of evidence would be unethical and would seriously damage the integrity of proceedings.[3] The Convention against Torture and Inter American Convention on Torture contain explicit provisions as to the exclusion of statements elicited by torture.[4] Thus exclusion of evidence is an important remedy for the violation of international human rights norms. Exclusionary rules apply to all evidence obtained by improper methods or in breach of human rights.[5] It also applies where the admission of evidence impedes with fact finding process.

It is to be noted that most of the common law jurisdictions have statutory provisions as to court's general power to exclude evidence. For instance in USA, The Federal Rules of Evidence,1975, provides that the court may exclude relevant evidence if its probative value is outweighed by the danger of one of the following like, unfair prejudice, confusing the issues, misleading the jury, undue delay, wastage of time, or needlessly presenting cumulative evidence.[6] In England and Wales, Police

3. Rome Statute of International Criminal Court, 1998 Art. 69(7). Rule 95 of The Rules of procedure and Evidence of International Criminal Tribunal for Rwanda 1995, Rule 95 of The Rules of Procedure and Evidence of International Criminal Tribunal for the Former Yugoslavia 1994, also speak on the same lines. As far as Strasbourg Court decisions are concerned, exclusion of evidence is generally based on facts and circumstances of each case and judicial discretion. The court is generally less concerned with the issues as to admissibility and weight of evidence than whether the proceedings were unfair as a whole. In European Convention on Human rights there is no explicit provision prohibiting court on relying hearsay evidence, character evidence etc., as many continental systems have no rule against it. The general trend exhibited by Strasbourg court as to the admissibility of hearsay evidence with all evidentiary questions is a matter of regulation of domestic law. The pertinent question is that in a given case, whether the admission of hearsay evidence has rendered the trial unfair. To determine this, the court considers whether absence of witness is justified. And if it is, whether the disadvantage to the defendant is sufficiently counterbalanced by procedural safeguards. However court has also recognised some exceptions also wherein hearsay evidence is admissible. As far as character evidence is concerned, the view of Strasbourg Courts are generally not to hold the procedure admitting character evidence as unfair. See, *Khan* v. *UK*, (2001) 31 EHRR 45; *Underpertinger* v. *Austria*, (1986) 13 EHRR 175.For discussion see, Steven Powels, " Evidence," in Madeleine Colvin and Jonathan Cooper, *Human Rights in the Investigation and Prosecution of Crime*, Oxford University Press, New York, (2009), pp. 311-346 at pp.316-318,327, 338.
4. The Convention Against Torture and Other Cruel, Inhuman and Degrading Treatment and Punishment, 1984, Art.15; The Inter-American Convention to Prevent and Punish Torture, 1985, Art.10.
5. Principle 27 of The Body of Principles for the Protection of All Persons Under Any Form of Detention or Imprisonment 1987, states that non-compliance with the principles they enshrine "shall be taken into account when determining the admissibility of… evidence against a detained or imprisoned person" and See also, Principle 9 of The UN Principles and Guidelines on Access to Legal Aid in Criminal Justice Systems, 2012. The Principles on Legal Aid list exclusion of evidence as one of the possible remedies which are required if an individual has not been adequately informed of the right to legal aid.
6. Federal Rules of Evidence, 1975, Rule.403.

And Criminal Evidence Act, 1984 provides that in any proceedings the court may refuse to allow evidence on which the prosecution proposes to rely, if it appears to the court that, having regard to all the circumstances, including the circumstances in which it was obtained, the admission of evidence would have adverse impact on the fairness of proceedings.[7]

Thus relevant evidence may be excluded if its admission would impede with the fact finding process. It may also be excluded for reasons extraneous to fact finding process as in the case of improperly obtained evidence. In both cases, the evidence is excluded because, if admitted, it would have impact on right to fair trial of the accused. The evidentiary barriers to the admission of evidence based on Forensic Psychological Tests is analysed by the researcher without seriously examining the concept of relevant evidence. Generally under common law systems, evidence is considered as relevant, if it has a tendency to decrease or increase the probability of a fact in issue.[8]

## 7.1 Exclusion of Evidence Impeding With Fact Finding Process

The cardinal principle of law of evidence is that the best evidence should be adduced before the court of law.[9] Best evidence means the evidence which is collected through direct source. So, derivative or second hand evidence will be excluded. This means that witnesses who are fact reporting agents shall testify only what they have perceived with one of their five senses.[10] Hence general rule of evidence is that opinion evidence is to be prohibited. However a number of exceptions to this general rule have been carved out, as it was found necessary for due administration of justice. Expert evidence is one such exception to exclusionary opinion rule.

7 . Police and Criminal Evidence Act, 1984, s. 78(1).Similar provisions are found in the Evidence Act in Australia and New Zealand. This aspect is analysed in detail in later part of this chapter.

8. Howard L. Krongold, "A Comparative Perspective on the Exclusion of Relevant Evidence: Common Law and Civil Law Jurisdictions," Vol.12, Dalhousie Journal of Legal Studies, 2003, pp. 97- 133 at p.101.

9 . Best Evidence Rule.

10. V. R. Dinakar, *Scientific Expert Evidence: Determining Probative Value and Admissibility in Court Room*, Eastern Law House private Limited, Kolkata, (2013), p.10.

Expert evidence is accepted because expert adds something relevant to the materials which the court has already received and in the absence of which the judge may not be in a position to determine the fact in issue. Experts assist the court in arriving at a fair and accurate conclusion. Though expert evidence may be admitted in civil and criminal proceedings, it has more significant role in criminal cases, as rights and liberty of persons are involved.

But if expert evidence impedes with the legal decision making, influencing finality of the decision, it would adversely affect the right to fair trial of the accused. Therefore, certain rules of exclusionary mechanisms are developed which would impose a barrier on admission of expert evidence, if it impedes with fact finding process. These rules are mainly rules against hear say, common knowledge rule, ultimate issue rule etc.[11] These rules ensure that only relevant and reliable evidence are admitted and ensures right to fair trial of the accused. Now it is important to analyse whether evidence collected by means of Forensic Psychological Tests violate these exclusionary rules. In this contest, it is important to note that the apex court in *Selvi* held that Polygraph evidence is inadmissible on the grounds of these exclusionary rules of evidence.[12]

## 7.2 Forensic Psychological Evidence and Exclusionary Rules Affecting Fact Finding Process

Exclusionary rules of evidence require that a certain form of evidence must be treated with caution.[13] The rules are mainly directed against evidence of certain

11. These rules are discussed in detail in later part of this chapter.
12. *Selvi* v. *State of Karnataka*, (2010) 7 S.C.C. 263.Brain Electrical Oscillation Signature Profiling Test was held inadmissible on the ground of *Daubert* guidelines and Narco Analysis was held inadmissible on the ground of lack of scientific consensus and reliability.
13. J.R. Spencer, *Hearsay Evidence in Criminal Proceedings*, Hart Publishing, Oxford, USA, (2008), p.2. The author briefly discusses about the origin of these rules. Accordingly, in its modern form, these rules grew up in the criminal courts together with a package of other exclusionary rules during second half of Eighteenth and first half of Nineteenth Century. The history of the rules could be traced to the fact that, judges who were increasingly aware of the risks of innocent persons being convicted, began to create certain safeguards. One safeguard was the willingness to suppress evidence on which they thought it was inappropriate to convict. The other safeguard was to bend the rules which in theory denied counsel to the defendants in felony cases. Over the years these two developments work together. When counsels were first allowed to defend their clients, the means to defend their clients were very much limited. One of the means was to persuade the judge to exclude certain pieces of evidence with respect to which they

categories of witness who are declared to be incompetent, character evidence rule and rule against hear say.[14]

### 7.2.1 *Exclusionary Rules Affecting Fact Finding Process*: *Position in India*

The rule relating to competency of witness has been abolished in most of the countries.[15] When Indian position is analysed, it could be seen that, every person is competent to testify unless the court feels that he is not able to understand the questions put to him or to give rational answers to them.[16] This may be due to extreme old age, tender age, disease whether of body or mind or any other cause of the same kind. All others are competent witnesses. In this context, it is important to consider the article by Lisa Rozzanao regarding hypnotic testimony.[17] She had stated that, though, the court may be right in questioning the reliability of hypnotically induced recall, a *per se* rule declaring all previously hypnotised witness as incompetent is unfounded. This will result in exclusion of relevant evidence.

The same rationale may be applied in the case of Forensic Psychological Tests also. In *Selvi,*[18] the Supreme Court had held that, statement made during the course of the tests or expert evidence in this regard is inadmissible in evidence. As per Indian Evidence Act, 1872, every person is competent to testify except to the extent provided in Section 118 and Section 60.[19] Hence to exclude the testimony of the expert only on the ground that reliability of the Forensic Psychological Tests, are still not proved, would result in exclusion of relevant evidence. Thus *per se* exclusion of Forensic Psychological evidence may be unfounded and court must decide admissibility issue based on facts and circumstances of each case.

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could invent reasonable objections. These objections when upheld, gave rise to the exclusionary rules of evidence.

14. There are rule against oath helping, rule against admission of past inconsistent statement, ultimate issue rule which are also considered in this study.
15. For US position, See Lisa K. Rozzano, "The Use of Hypnosis in Criminal Trials: The Black Letter of the Black Art," Vol.21, Loyola of Los Angeles Law Review, 1988, pp. 635-706 at p.659. For English position, see *supra* n.13 at p.5.
16. Indian Evidence Act, 1872, s.118.
17. Lisa K. Rozzano, *supra* n. 15.
18. *supra* n. 12.
19. Section 60 of Indian Evidence Act provides that oral evidence must be direct.

The character evidence rule which is dealt with in Sections 52-55 of Indian Evidence Act, 1872, is also not an absolute one.[20] Under the scheme of the Act, the question of admissibility of character evidence is approached differently in accordance with character of the parties to the proceedings and that of the witnesses[21]; Character evidence in civil proceedings[22] as distinct from criminal proceedings and Character when in issue and when not in issue.

As far as criminal proceedings are concerned, good character of the accused is always relevant.[23] However bad character becomes relevant, to contradict evidence of good character or if bad character itself, is a fact in issue or if it is otherwise relevant under other provisions of Indian Evidence Act.[24] Character includes both reputation and disposition. Evidence of general reputation or disposition alone can be given. The evidence cannot be given of particular facts. However it is subjected to the exception under Section 54 of Indian Evidence Act, 1872.[25] Thus the rule against character evidence is not an absolute one and is subjected to several exceptions.

Regarding hearsay rule, it may be stated that, as per Section 60 of Indian Evidence Act, 1872, the oral evidence must be direct. This means that, only a direct evidence of a fact which can be perceived by the senses can be given. Thus, it may be said that hearsay evidence is generally inadmissible, [26] when the object of the evidence is to establish the truth of what is contained in the statement by examining some other person. But it is not hear say, when it is proposed to establish by the

20. In England this has been cut short. See, *supra* n. 13 at p.5.
21. When character evidence of witnesses is considered, it could be stated that the evidence is of great importance and relevance in both civil and criminal cases. See Ss. 146, 153 of Indian Evidence Act 1872.
22. General rule is exclusion.
23. Indian Evidence Act , 1872, s. 53.See also, *Habeeb Mohammed* v. *State of Haryana*, A.I.R. 1954 S.C.51.
24. Indian evidence Act, 1872, Ss. 6, 8, 14, 15 and s.43 Illustration. (e) and (f).
25. Indian Evidence Act 1872, Explanation to s.55.
26. Hearsay rule is inadmissible because it is considered as weak evidence. The general rule is that a statement of a person is given credit only if it is taken on oath and is subjected to cross examination. It is also required to be made in the presence of court where the moral, and the intellectual character and the demeanour are subject to observation. But if a person only states what he hears from another and hence not exposed to the danger of a prosecution for perjury, and therefore the evidence is very much liable to be fallacious. Batuklal, *Law of Evidence*, Central Law Agency, Allahabad, (19th edn., 2012), p.336.

evidence, not the truth of the statement, but the fact that the statement was made.[27] In that case it will be admissible. Hearsay rule is also not absolute and Indian Evidence Act, 1872, admits certain exceptions to it.[28]

Thus, as per the scheme of Indian Evidence Act, exclusionary rule of evidence impeding with fact finding process, is not absolute and is subjected to several exceptions. Moreover, The Indian Evidence Act establishes evidence in the form of inclusionary rather than exclusionary.[29] The admissibility of evidence is determined solely by relevancy and reliability rather than considerations of exceptions to the common law exclusionary rules or other statutory requirements.

The most important evidentiary objection against Forensic Psychological Tests like Polygraph, Functional Magnetic Resonance Imaging[30] is that, these evidence are considered as out of court statements that appears as being offered for its truth and therefore hearsay. In *Selvi* v. *State of Karnataka*,[31] the Supreme Court had held that the Polygraph evidence shall be excluded on the ground that it violates exclusionary rules of evidence. Hence it is important to consider whether Forensic Psychological Tests would violate exclusionary rules of evidence like common knowledge rule, ultimate issue rule, rule against self serving statement, oath taking rule, inconsistent prior statement, character evidence rule etc.

### *7.2.2 Forensic Psychological Tests and Rule Against Oath Helping*

In earlier times, the defendant in a civil case or an accused in a criminal case could prove his innocence by providing a certain number of compurgators who would swear to the truth on their oath.[32] The rule against oath helping is against the admissibility of evidence solely for the purpose of bolstering the credibility of one's

27. *Subramaniam* v. *Public Prosecutor,* (1956) 1 W.L.R. 965. It was approved by the Supreme Court in *Balram Prasad Agarwal* v. *State of Bihar,* (1997) 9 S.C.C. 338 and in *State of A.P* v. *Patnam,* A.I.R. 2005 S.C. 764.
28. See, The Indian Evidence Act 1872.They are *Res Gestae* (s. 6), admissions and confessions, statements relevant under s. 32, evidence in former proceedings (s.33), statements in public documents, statements of experts in treatises (Proviso to s. 60).
29. Siyuan Chen, "The Future of the Similar Fact Rule in an Indian Evidence Act Jurisdiction: Singapore," Vol. 6 (3), National University of Juridical Sciences Law Review, 2013, pp.361-386 at p.365.
30 . Herein after referred as FMRI.
31. *supra* n. 12.
32 . *R.* v. *Beland,* [1987] 2 S.C.R. 398.

own witness. The Canadian case, *R.* v. *Beland* [33] is the most important case law regarding this issue.[34] The Majority in that case held that the rule against oath helping is well grounded in authority[35] and as it is apparent that evidence of Polygraph has no other purpose than bolstering the witness credibility, its admission would offend oath helping rule.[36]

But this view does not seem sound. It seems that there is not much similarity between oath helping and admissibility of Polygraph evidence. Oath helpers are not required to have any knowledge, material to the guilt or innocence of the accused.[37] They merely recite a particular oath. Their Oaths are not subjected to rebuttal. But a Polygraph examiner's role is different. He has subjected the accused to a number of tests and gives report of the results of the tests. He also gives expert opinion as to whether the physiological reactions of the examinee are similar that of truthful or deceptive persons with respect to the relevant questions.

In fact, these aspects were also discussed by the minority judges in *R.* v. *Beland.* Justice Wilson has asked

> "… in what sense, then can Polygraph evidence be said to be similar to the medieval device by which the accused was guaranteed an acquittal if he could muster a sufficient number of compurgators? Any suggestion of similarity would it seems to me, have to be based on the assumption that , despite the cross examination of the Polygraph operator, the calling of other operators to challenge erroneous statements by the original operator and the delivery of a proper charge to the jury, the jury would automatically base its decision on the Polygraph operators testimony. I think this is an unwarranted assumption."[38]

It seems that, the view taken by Justice Wilson in *Beland* is proper and admissibility of Polygraph evidence has no connection with rule against oath helping. For the same reasoning, it may be stated that, the evidence is not violative of rule

33. *ibid*.
34 . This case is followed in other common law jurisdictions.
35. Court had discussed several case laws wherein it was held that evidence given solely for bolstering the credibility of witness violates rule against oath helping and hence inadmissible in evidence.
36. *supra* n. 32.
37. *ibid*.
38. *ibid*.

against past inconsistent statement[39] and self-serving statement.[40] It is also important to note that majority view in *Beland*, had referred *Phillion* v. *The Queen*[41] which also dealt with polygraph admissibility.

In *Phillion* the court held that, such evidence would violate hear say rule. Justice Ritchie had distinguished between psychiatric and psychologists expert opinion and Polygraph expert evidence. It was held that statements made to psychiatrists and psychologists are admitted in criminal cases as they have qualified as experts in diagnosing the behavioural symptoms of individuals. They have formed an opinion which the trial judge deems to be relevant to the case. The statements on which their opinions are based are not admissible in proof of their truth, but are admitted as indicating the basis upon which the medical opinion was formed in accordance with recognised professional procedures. The majority opined that entirely different considerations would apply in the case of Mr Ried, the Polygraph examiner, who is neither a psychiatrist nor a psychologist nor having any medical training. The judge stated that, if any statement had been made to Ried, then the statement is inadmissible as self serving statement. Though it is true that Reid's statement is not based on statements made by the subject, but on his own interpretations and expertise, it is second hand evidence given in proof of the truth for the accused who himself is not fit to testify. The judge also stated that neither the Polygraph machine nor the expertise of the examiner would make the evidence admissible. If such evidence is admitted it would mean that any accused person who had made a confession would elect not to deny the truth under the oath and substitute for his own evidence the results produced by a mechanical device in the hands of a skilled operator which rely exclusively on its efficacy as a test of veracity.[42]

39 . This rule is stated by Neville J. in *Jones v. South-Eastern and Chatham Railway* (1917), 87 L.J.K.B. 775 (C.A.), at. p. 779. It was observed that, "... Statements may be used against witness as admissions, but...you are not entitled to give evidence of statements on other occasions by the witness in confirmation of her testimony." C.f. *ibid*.

40. Self-serving statements are those made by a party out of court advocating his own interest; they do not include a party's testimony as a witness in court. Self-serving statements are inadmissible because the adverse party is not given the opportunity for cross-examination, and their admission would encourage fabrication of testimony. This cannot be said of a party's testimony in court made under oath, with full opportunity on the part of the opposing party for cross-examination. See *People of the Philippines* v. *Mary Lou Omictin y SingCo,* Supreme Court of Philippines, July 2010,available at http://sc.judiciary.gov.ph/jurisprudence/2010/july2010/188130.htm (accessed on 05/11/2017).

41 . [1978] l S.C.R. 18.

42. *ibid*.

However, it may be stated that the statements made by Justice Ritchie is not applicable with respect to the forensic psychologists who work in Forensic Science Laboratories in India. Because the minimum qualification for their appointment, is post-graduation in psychology. The information obtained by filing application under Right to Information Act, 2005, shows that some of them even have PhD. Some have experience for more than 25 years. Moreover, presently it seems that the programming in Polygraph, Brain Electrical Oscillation Signature Profiling Test[43] and Layered Voice Analysis Test [44] are computerised and there is very less scope for subjective interpretation.

It is also pertinent to note that C.J. Laskin, who wrote concurring but separate reasons in *R.* v. *Beland*,[45] though agreed for the rejection of such evidence, had left open the question whether in other circumstances, the Polygraph evidence might be admissible. Thus, it may be stated that in the present era, wherein crime rate is increasing in manifold and research in forensic psychology is also advancing, there is a need for reconsideration of the decisions of *Phillion* v. *The Queen.* [46] and *R.*v. *Beland,* [47] not only to advance state interests but even to safeguard the rights of innocent suspects.

### *7.2.3 Forensic Psychological Tests and Rule Against Hearsay*

The majority in the Canadian case, *R* v. *Beland,* had stated that this rule is soundly based and is mostly appropriate to questions which are raised in connection with Polygraph evidence. The court held that Polygraph evidence would be entirely self-serving and do not shed any light on the real issues at the court. The admission of such evidence would be time consuming and also lead to confusing consideration of collateral issues drifting away from the real issue of determination of guilt or innocence. The majority also stated that only those defendants who succeeds in the Polygraph examination intends for the test results to be admitted.[48] There is also chance of examiner shopping, as there is no compulsion to accept the result of first test and

43. Herein after referred as BEOS.
44. Herein after referred as LVA.
45. *supra* n. 32.
46. *supra* n.41.
47. *supra* n. 32.
48. See, Lisa K. Rozzano, *supra* n. 15 at p.659.

subjects may take as many examinations till they get beneficial results. Based on these reasons, the majority came to the conclusion that Polygraph evidence violates ultimate issue rule and also rule against oath helping and consistent statement. It was also stated that the Polygraph evidence adds nothing to the earlier statement of the witness which is sought to be supported.

But, what was stated by majority in *Beland* is not applicable in the present context. Because, the test could be done only in forensic science laboratories based on court order. The accused has no right to take Polygraph Test with an expert of his choice. Moreover the test could be done only with the consent of the subject and in the presence of the defence lawyer. It may also be stated that the rule against consistent statement is not applicable with respect to Polygraph evidence. Polygraph evidence is not the evidence that, the defendant had said the same thing twice. It is actually the opinion by the expert as to the physiological changes that take place when a person answers the relevant questions. In Polygraph Test, the person does not make any statement.[49] But he gives only 'yes' or 'no' answers. Even those 'yes' or 'no' answers are not taken into consideration in arriving at any result. Thus it may be stated that, the rule against self-serving statement or consistent statement is not applicable with respect to the results of Polygraph Test examination. Hence the majority opinion stated in *R.* v. *Beland*, in this regard seems to be incorrect.

It is also pertinent to note the minority opinion by Justice Wilson, who opined that Polygraph evidence is relevant. He stated that the Polygraph Test is not established as *per se* lacking probative value. Hence it seems that, the possibility of abuse should be a factor going to the weight rather than to the admissibility. He also stated that the factors like examiner hunting etc., is also not applicable with respect to Polygraph Test. So it may be stated that the minority opinion given by Justice Wilson seems more acceptable in the present scenario.

49 . Same view was taken by Justice Wilson in *R.* v. *Beland*. See *supra* n.32.

The scholars have also mostly failed to address the hearsay problem when they discuss about Polygraph admissibility.[50] At the same time, there are many writings wherein it is stated that hearsay rule poses no problem to the admissibility of Polygraph evidence.[51] For instance, Edward J Imwinkelried and James R Mc Call, in their article,[52] have stated that the statements made by the subject undergoing Polygraph examination do not amount to hear say because firstly, the answers of the subjects are the verbal part of a relevant act, "Polygraph experts examination." Secondly, Rule 703 would override the hearsay doctrine and permit the Polygraph examiner to express an opinion based in part on the examinees responses.[53] Thus Polygraph evidence do not violate hearsay exclusionary rule. Based on the same reasons, it may be stated that these rules are not applicable with respect to BEOS, FMRI, Brain Fingerprinting and LVA Tests.

Regarding Narco Analysis, the US position regarding Hypnosis, which is analogous to Narco Analysis seems helpful.[54] As per US jurisprudence, generally a person's statement under hypnosis is considered as hearsay and hence inadmissible.[55] But there are also case laws which take the view that though these recordings of hypnotic statement to a doctor are not admissible to prove the truth of the matter asserted, they may be admissible in evidence as the basis of the doctor's opinion

50 . Timothy B. Henseler, "A Critical Look at the Admissibility of Polygraph Evidence in the Wake of *Daubert* : The Lie Detector Fails the Test," Vol. 46, Catholic University Law Review,1997, pp.1247-1297 at p.1293. The author argues for the rejection of Polygraph evidence on various grounds, but declined to include hearsay rules as obstacle to its admission.

51. John C. Bush, "Warping the Rules: How Some Courts Misapply Generic Evidentiary Rules to Exclude Polygraph Evidence,"Vol.59 (6), Vanderbilt Law Review, 2006, pp.539-570 at pp.542-552. In this article the author contended that federal courts improperly twisted general evidentiary rules to exclude Polygraph evidence, while briefly noting that hearsay rules present no problem for Polygraph evidence as long as test results are not offered to prove the truth of the matter asserted.

52. Edward J. Imwinkelried & James R. McCall, "Issues Once Moot: The Other Evidentiary Objections to the Admission of Exculpatory Polygraph Examinations," Vol.32 (4), Wake Forest Law Review, 1997, pp.1045 -1081 at pp.1071,1073.

53. *ibid*. See also, James R. McCall, "The Personhood Argument Against Polygraph Evidence, or Even if the Polygraph Really Works, Will Courts Admit the Results?," Vol.49(37), Hastings Law Journal, 1998, pp. 925-944 at p. 934. It was stated that Polygraph evidence presents no legitimate hearsay concerns.

54. In *Selvi, supra* n.12, the Supreme Court treated Narco Analysis as analogous to Hypnosis.

55. *State* v. *Conley*, 627 P.2d 1174, 1178 (Kan. Ct. App. 1981). See also, Joel R Hlavaty, "Hypnosis in Our Legal System: The Status of its Acceptance in the Trial Setting," Vol. 16(3), Akron Law Review, 1983, pp.517-536 at p.520. The Court usually considers these statements as that made under truth serum or under lie detector test and hence unless there is stipulation, it is inadmissible in evidence.

concerning the subject.[56] The US courts take divergent approaches in this regard. In some States jurisdiction, the courts have allowed the statements to be admissible as a basis for the hypnotist's opinion.[57] Some courts had left it to the discretion of the trial court whether or not to admit the statements.[58] Some courts merely hold that the statements are inadmissible.[59]

Regarding the objection of hypnosis evidence based on hearsay, Liza[60] suggested that the four factors laid down in *Dutton* v. *Evans,*[61] shall be applied to hypnotic testimony before admitting it in evidence. If the statement made under hypnosis do not meet *Dutton* test, it would be inadmissible on the basis of hearsay. But if the party seeking the evidence is able to overcome these objections through corroborating the witness testimony or through independent evidence, then it would be admissible.[62]

In this regard, it is important to consider the US Supreme Court decision in *Rock* v. *Arkansas.*[63] In that case, the constitutionality of states *per se* exclusion of hypnotically refreshed testimony of a defendant who could establish her defence only on that basis was in issue. The accused was charged with manslaughter of her husband by shooting. She stated that she could not remember any details of shooting. She was subjected to two sessions of hypnotic interview and was able to remember that she did not put fingers in the trigger of the gun and it went of accidently when there was a scuffle between her and her husband. Based on this revelation, the defence counsel ordered the examination of the gun which was proved defective and that it was prone to firing without the trigger being pulled. But both the trial court and the Arkansas Supreme Court held that defendant's hypnotically refreshed

56. For example, *State* v. *Harris*, 405 P.2d 492 (1965).
57. *People* v. *Blair*, 602 P.2d 738 (1979) and *People* v. *Modesto*, 382 P.2d 33 (1963).
58. People v. Hiser, 72 Cal. Rptr. 906, (Cal. Dist. Ct. App. 1968).
59. *State* v. *Conley*, 627 P.2d 1174 , 1178 (Kan. Ct. App. 1981).
60. Liza Rozzano, *supra* n. 15.The factors are (i)The out of court statement does not contain an express assertion about a past fact, (ii) the possibility that the out of court statement is founded on faulty recollection is extremely remote,(iii) the circumstances under which the statement was made indicate that the declarant is not misrepresenting the facts and(iv) the declarant had personal knowledge of the matters asserted in the statement.
61. 400 U.S. 74 (1970).
62. The same rule may be applied with respect to Narco Analysis also.
63. 483 U.S. 44 (1987).

statements are inadmissible on the grounds of hearsay rule but permitted her to testify those matters which she remembers prior to undergoing the tests. However US Supreme Court vacated the Arkansas court order.

The Supreme Court held that states *per se* exclusion of defendant's testimony must not amount to infringement the defendant's right to testify on his own behalf and his right to present his defence. The court also referred *Chambers*[64] decision which had warned that hearsay rules shall not be applied mechanically to interfere with the ends of justice. Thus, it may be stated that as statements made under Narco Analysis is also analogous to Hypnosis and there should not be *per se* exclusion of Narco Analysis Evidence. The Courts may take case by case approach to determine whether Narco Analysis violate hearsay rule.

Moreover, the present trend of most of the common law countries like Australia,[65] England,[66] USA[67] etc., is to limit or abolish hearsay rule. Hence it may

64 . *Chambers* v. *Missippi*, 410 U.S. 284 (1973).

65. In Australia, though hearsay rule is not expressly abolished; it is indirectly abolished by means of Section 60 of Uniform Acts which is of general application. The provision permits hearsay statement which comes into evidence for one purpose to come into evidence for all purpose which includes the purpose of proving the facts stated in the hearsay statement. Thus practically this provision has the effect of abolishing the hearsay rule in so far as it would operate to prevent the fact based underpinnings of an expert opinion from being proved by hearsay evidence given by the expert himself. Section 60 is also broad enough to admit an expert report of a fact told to him out of court as evidence that, that fact is true and not merely as part of foundation to bolster his opinion. It may be stated that the combined impact of Section 60 and the leniency with which basis rule is applied in Australia is that courts in that country is given the statutory licence to adopt a relatively wide approach to receive expert evidence. (Section 60 provides as follows: The hearsay rule does not apply to evidence of a previous representation that is admitted because it is relevant for a purpose other than proof of the fact intended to be asserted by the representation). See Vinodh Coomaraswamy, S.C., *Report of the Law Reform Committee on Opinion Evidence, Singapore*, Singapore Academy of Law, October 2011, p.50, available at https://www.sal.org.sg/Portals/0/PDF%20Files/Law%20Reform/2011-10%20-%20Opinion%20Evidence.pdf (accessed on 20/12/2017).

66. When English position is examined, it is found that, English courts have taken a liberal attitude regarding the extrinsic materials which influences or assist the expert in forming his opinion in a general sense even though strictly speaking, such material is prima facie hear say. The present position is that hearsay rule is abolished in civil cases whereas it still holds good in criminal cases. In criminal cases, expert evidence is governed by Section 30 of Criminal Justice Act, 1988 which stipulates that, with the leave of court, expert report is admissible even without the need to call expert to give oral evidence. This may be considered as statutory exception to Hearsay Rule. Section 127 also acts like an exception to hearsay evidence. The section stipulates that, the party intending to adduce expert report as evidence in criminal proceedings must provide the other party together with the report, a list of persons involved in its preparation. The burden will be then on the opposing party to prove that, in the interests of justice those expert assistants must be called to testify in person. If the opposing party fails to satisfy the court to the need to call for expert assistants, then expert's opinion on those statements would become evidence by way of an

be stated that, *per se* exclusion of Forensic Psychological Tests on the ground that it violates hearsay rule is inappropriate as it would detrimentally affect both the states interest and the interests of innocent accused.

### *7.2.4. Forensic Psychological Tests and Rule Governing Character Evidence*

This rule posits that the prosecution is not allowed to prove that an accused had committed a crime by means of the evidence that he is a person of bad character and is the one who is in the habit of committing crimes.[68] This means that proof of guilt is limited only to the transaction which forms the charge upon which he is being tried.[69] This rule is subject to the qualification that, if the defence brings his good character in issue, then the prosecution may bring evidence of bad character.

The earlier view with respect to giving character evidence was that, it was limited to evidence of general reputation than of specific incidents of good conduct. However recent views have made some compromise of this position.[70]Presently the position is that[71] when the defence puts the character of the accused in issue either by cross examination of prosecution witnesses or by calling defence witnesses, than the accused, then the rule should be strictly enforced and that evidence must be confined to general reputation. But when accused himself puts his character in issue, he is not so confined.

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exception to hearsay statement. Thus it may be stated that as per English law also hear say rule has only limited application. For discussion see, *id.* at p.58.

67. When US position is analysed, it could be found that hearsay rule is not absolute. The facts which are usually of the type reasonably relied on by experts in the same field need not be proved directly, for the expert opinion to be admissible as per Rule 703 of Federal Rules of Evidence, 1975. The Rule 803 of Federal Rules of Evidence has a list of express hearsay exceptions. These exceptions are of general application and are sufficiently wide enough to admit much hearsay evidence on which expert would rely as evidence of the truth of the matters stated therein. Federal Rules Evidence, also have express provision to deal with expert's reliance on the opinions of others. See for discussion, *id.* at p.66.
68. McWilliams and Peter.K, *Canadian Criminal Evidence* ,Canada Law Book, Aurora, Ontario ,(2nd edn., 1984), p.275.
69. *ibid.*
70. Earlier position was as stated in *R.* v. *Rowton,* (1865), Le. & Ca. 520.In *R.*v. *Rowton,* 1865), Le. & Ca. 520, available at http://learning.uonbi.ac.ke/ courses/GPR201/ document/ Selected_Cases/ R.v Rowton.pdf (accessed on 05/11/2017) , wherein it was stated that an accused put his character in issue not only by giving evidence of general reputation, but by making assertions which would tend to show that he is a person of good character specifically with regard to that aspect of character which is in issue. For details see, *supra* n. 32.
71. *supra n.*68 at p.282.

The Majority in *R* v. *Beland* [72] held that the purpose of Polygraph evidence is to bolster the credibility of the witness. It is to show that the subject is of good character by the inference that he did not hide or lie during the course of conducting the test. Thus, the evidence is not of general reputation, but of a specific incident which is prohibited under the rule. Hence it is stated that the introduction of Polygraph evidence would violate character evidence rule. However character evidence rule and specific incident rules are not absolute and are subjected to exceptions.

At this juncture, it is important to analyse, Justice Wilson's view as to character evidence in *R.* v. *Beland* and its applicability to Polygraph evidence. Justice Wilson had raised his doubts as to applicability of character evidence rule to Polygraph evidence. He stated that there is distinction between character and credit.[73] He quoted *R.* v. *Hardy,* [74] wherein it was stated that "character goes to the issue, which is the probability of the accused having committed the offence, while credit goes to the collateral issue, which is the weight to be attached to the testimony of the accused."[75] Justice Wilson also quoted, *R.* v. *Mc Lean,*[76] wherein, it was held that an accused puts his credit in issue, just as any other witness, if he testifies. In this case he does not put his character in issue. He puts his character in issue when he calls his evidence of good character whether he testifies or not. Justice Wilson states that Polygraph evidence is adduced for bolstering the credibility of the witness and the object of this evidence is not to show that the accused is not the sort of person who would commit the offence. It is introduced with the purpose of giving evidence to the extent that the physiological reactions of the accused are consistent with that of a person who tells the truth. He states that the general rule is that if the defence had put the character in issue by cross examining prosecution witness or by calling defence witness other than the accused, the evidence given must relate to general reputation of the accused and not to specific incidents of good behaviour. However if the accused testifies, he may give evidence of specific incidents. J. Wilson criticizes the majority's inference from these rules that, since it is the Polygraph examiner who gives the evidence of specific incidents and not

72 . *supra* n.32.
73. *ibid*.
74. (1794), 24 St. Tr. 199, as cited in *ibid.*
75. *ibid.*
76 . (1940), 73 C.C.C. 310 (N.B.S.C. App. Div.), as cited in *ibid*.

the accused himself, the evidence must be excluded in spite the fact that accused has testified. Justice Wilson states that this is an artificial distinction. Because if accused could bring character evidence of specific incidents when he testifies, the rule that he could not bring other witnesses to give meaning to these incidents is not proper. Therefore Justice Wilson opined that it would only be proper to allow the Polygraph evidence to be given in such situations. Hence it may be stated that the view taken by minority in *R.* v. *Beland,* is the appropriate one regarding the applicability of character evidence rule with respect to Polygraph evidence.

The character evidence rule requires that the forensic psychologist should give evidence to the effect that a particular accused is the type of person or is a person of certain character that he could not have acted in a certain manner. This type of evidence is considered as circumstantial evidence pertaining to *actus reus* and whether the accused committed the prohibited act. Such evidence would fall within the ambit of character evidence and is likely to subject to exclusion. But the procedure and the working of all the non-invasive Forensic Psychological Tests like Brain Electrical Oscillation Signature Profiling Test,[77] Layered Voice Analysis [78] etc., reveal that the psychologist does not give any evidence to this effect. Hence it may be stated that these tests do not violate character evidence rule.

#### *7.2.4.1 Whether Narco Analysis Violates Character Evidence Rule?*

In Narco Analysis, as the person makes the statement, the issue of character evidence rule assumes more importance. When US case laws are analysed, one of the main grounds on which Narco Analysis is challenged is that it violates character evidence rule. This issue was considered in *People* v. *Jones.*[79] In this case the accused was charged with sexual offence on a nine year old girl. The only evidence was the statement made by the girl. However accused denied the charges. The contest was between the credibility of accused's words and victims words. Here the evidence would be in the nature of determining the character of the accused, as the presence or absence of the certain personality traits would become relevant to determine the character which is in turn relevant to determine whether the accused had committed the alleged offence.

77 . Herein after referred as BEOS Test.
78. Herein after referred as LVA.
79. 266 P.2d 38 (1954).

In this case, the court admitted psychiatric evidence as to character. Psychiatric opinion based on the results of the test was that, accused was not a sexual deviant. In this case, the court held that, the evidence purported to be given by the expert are not answers to the questions posed to the accused, but it is the expert's analysis of those answers in order to determine whether the accused is a sexual psychopath. It is actually based on expert's opinion as to the subject's sexual orientation that the Court has to draw inference as to whether accused committed the offence or not. The court is not making any inference from the statements made by the accused in Narco interrogation.

Another land mark case is, *People* v. *Modesto.*[80] In this case the accused was tried for the murder of two girls in a state of intoxication. The psychiatrist recorded the statements made by the accused during hypnosis. The psychiatrist testimony as to the intent of the accused at the time of commission of the offence was admitted. The court followed *Jones* when it admitted the testimony of the expert which stated that he based his findings on various factors including hypnotic interviews. The court also opined that though tape recorded statement of the accused to the psychiatrist during the test may not be admitted in evidence, as to the proof the statements made by the defendant, it may be admitted in evidence as evidence of all data on which the expert based his opinion. In fact, it may be stated that the dictum in Modesto may rightly be applied to Narco interrogation also.[81]

Thus it may be stated that, evidence based on Narco interrogation may not be *per se* excluded. If Narco interrogation is used to determine past mental state, it is admissible in evidence. But if it is used to prove the truth of the matter asserted, it is not admissible. Similarly, if the statement is used as evidence of all data on which the expert based his opinion, it may be admitted and it will not violate character evidence rule. It may thus be stated that statements may be used as an investigative tool to get a lead in the investigation. It is only in very rare cases Narco Analysis Test is conducted. Hence, a law may be enacted which may specify the circumstances in which Narco Analysis Tests may be conducted.

80 . 382 P.2d 33 (1963).

81 . James I. Michaelis, "Quaere, Whether 'In Vino Veritas': An Analysis of the Truth Serum Cases," Vol. 2(2), Issues in Criminology, Drug Use and Crime, Fall 1966, pp. 245-267 at p.260.

#### *7.2.4.2 Character Evidence Rule and Psychological Evidence*

There are also some opinions which state that the strict application of exclusionary rules including character rule should not be applied with respect to psychological and psychiatric evidence.[82] For instance Kenneth Chasse.L, in his article,[83] states that psychiatric evidence is an area where the rules respecting character evidence actually conflicts with and must be reconciled with those respecting expert opinion evidence. He states that the primary principle of character evidence is that such evidence must be in the form of general reputation and not in the form of individual opinion or specific instances of conduct to provide a foundation for that opinion. But psychiatric /psychological evidence which deals with traits of character must be in the form of individual opinion. It must also reveal specific instances of conduct in order to provide a foundation for that opinion. The author states that when psychiatrist or a psychologist supports a person's testimony by stating that his psychological testing reveals a lack of intent/ lack of capacity to form necessary intent, 'the question is whether the psychiatrist is giving an opinion on the accused's capacity for veracity , i.e. credibility or upon his disposition to commit a particular act."[84] Hence the author states that it is not unreasonable to expect that psychiatric evidence would develop in the future into a separate branch of law of evidence.

### *7.2.5 Forensic Psychological Tests and Common Knowledge Rule*

The expert's opinion is admissible only if the scientific information provided by him is outside the experience and knowledge of the jury. If on the proven facts, the judge could form his own conclusions without any help, then the opinion of expert is unnecessary.[85] But the common knowledge rule is subjected to several criticisms. One of the main criticisms is that, it is extremely difficult to distinguish between thing which is within the common knowledge and outside the common knowledge. In that field of psychiatry and psychology it would be more difficult to separate testimony which reflects genuine expertise and the other one which is not.[86] At this juncture, the meaning

82. Kenneth L.Chasse, "Exclusion of Certain Circumstantial Evidence: Character and Other Exclusionary Rules," Vol. (2), Osgoode Hall Law Journal, October 1978, pp. 445-493 at p.469.
83. *ibid.*
84. *ibid.*
85. *R* v. *Turner,* [1975] 1 All E.R. 70, 73, *per* Lawton L.J.
86. *supra* n. 10 at p.65.

of the term common knowledge gains much importance. In fact judges have not clarified what is common and it has to be decided based on facts and circumstances of each case.

Dinakar, in his book "Scientific Expert Evidence," discusses this issue.[87] He states that it may be true that judges may have belief about a subject, but that could not be concluded as correct. Judges are human beings and human beings have a basic instinct in substituting "good reasons "for real ones without conscious intention to justify their actions.[88] Moreover, judges must utilize the developments in social science to improve the credibility of the fact determination process.[89] The researchers state that most of the areas in behavioural science are beyond the understanding of ordinary people and in such situations expert evidence could contribute significantly to the judges understanding.[90]

At the same time there are judicial decisions wherein psychological expert evidence to boost or bolster the credibility of witness was admitted.[91] If expert testimony is helpful to the jury, it is admissible in evidence. Only thing is that the expert must be qualified to give the evidence. There is also no categorical restriction as to the nature of expertise. A psychologist can also provide admissible expert evidence within his scope of professional competence.

It may thus be stated, that it is difficult to define the concept of common knowledge rule. It may be a difficult task for the judges to draw a dividing line for excluding expert evidence, which is within and outside the common knowledge of judges.[92] In this era of advanced social science research, it is prudent to utilize its benefit. Moreover trend of judicial decisions in common Law countries reveal that, there is flexible and liberalizing approach towards common knowledge rule in all

87. *ibid.*
88. See K.K. Sharma, *Psychology and Abnormal Human Beings*, Sublime Publications, Jaipur, India, (2000), pp.42, 44.
89. *supra* n. 10 at p.66.
90. *id.* at p.67.
91. *R.* v. *Robinson*, [1994]3 AII E.R 346 and *R.* v. *Pinfold and Mac Kenny*, [2003] E.W.C.A. Crim. 3643, available at http://www.bailii.org/ew/cases/EWCA/Crim/2003/3643.html (accessed on 06/11/2017).
92. *supra* n. 10 at p.69.

countries. For instance, when position in UK position is analysed, though after *R.* v. *Turner*,[93] English courts were reluctant to admit expert evidence on human behaviour as they were of the opinion that jurors had the expertise to know these issues. But, in a later decision, *R.* v. *Chang Hai Zhang*[94], court watered down the hardened position taken in *Turner*. The Court admitted an expert opinion offered by the psychologist to determine the effect of provocation on the accused due to the behaviour of the deceased.

In some common Law countries like Australia,[95] New Zealand[96] etc., it could be seen that, the rule is statutorily abolished. The Law Commission in Singapore whose Evidence Act is in *pari materia* with Indian Evidence Act, also recommended for the statutory abolition of common knowledge rule.[97] Hence it may be stated that *per se* ban on evidence based on Forensic Psychological Tests is not appreciable especially in the light of flexible and liberalizing tendency shown by judges towards common knowledge rule.

Moreover when the nature of tests like Polygraph is considered, it is very clear that only a person having previous study or specialized knowledge could properly conduct the tests and the scientific procedure and the theory behind the tests are not easily comprehendible to persons not having specialized knowledge in the subject. Hence assistance of expert testimony is required, for proper evaluation of these scientific tests. Therefore expert testimony based on Forensic Psychological Tests do not violate common knowledge rule.

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93 *supra* n. 85.This decision was influential in bringing this rule in England. The accused in this case was charged with murdering his girlfriend and he raised the defence of provocation. He contended that he had committed murder due to provocation when his girlfriend confessed that she had been unfaithful to him. The accused sought to adduce expert evidence in his favour mainly to prove that he lacked intent and that he was acting in provocation. Lawton L .J. upheld that trial court's refusal to accept the psychiatric expert opinion.

94 [2008] NICC 5, available at http://www.courtsni.gov.uk/en-GB/Judicial% 20Decisions/PublishedByYear/Documents/2008/2008%20NICC%204/j_j_HAR7073Final.htm (accessed on 22/101/2017). ( per Hart, J.). This decision was affirmed by Her Majesty's Court of Appeal in Northern Ireland [2011] NICA 25.

95 In *Murphy* v. *R.*, 1989]167CLR 94, Common Knowledge rule was affirmed by High Court of Australia.. After *Murphy* v. *R.*, "there was liberalizing shift in Australian jurisdiction as to the application of common knowledge rule." *supra* n. 10 at p.62.

96 The Law Commission of New Zealand had in 1999, recommended for the express abolition of the rule by statute. They recommended the replacement of this rule by "substantial helpfulness" test, which was being applied by the courts in some cases at that time. The common knowledge rule is statutorily abolished by Evidence Act in 2007. Sec 25(2) (b) of the Evidence Act 2006 which provides as follows: An opinion by an expert is not inadmissible simply because it is about … a matter of common knowledge. *supra* n. 65 at p. 20.

97 *id.* at p. 25.

### *7.2.6 Forensic Psychological Tests and Ultimate Issue Rule*

The ultimate issue rule states that it is for the judge or jury to give findings on any issue whether law or fact. It is not within the province of the expert to give findings on this issue. This was one of criticism that is usually raised against Forensic Psychological Tests. In *US* v. *Scheffer,*[98] Justice Thomas in his lead opinion has held that lie detector expert testimony has no evidentiary value as it serves only to duplicate a function already exclusively committed to the jury. In fact in many cases courts have excluded lie detector testimony on this ground.[99]

This issue was also considered by Bellin Jeffery in his article,[100] and he states that Justice Thomas's opinion stating that jury's exclusive role as lie detector do not constitute the majority and hence does not have precedential value.[101] He also states that a careful reading of Justice Thomas's opinion would reveal that "it does not state that the jury's role as exclusive lie detector is a legal ground for exclusion of lie detector evidence."[102] Rather, Justice Thomas actually makes much narrow point that, a concern that Polygraph evidence would erode the jury's role as exclusive lie detector was a valid basis on which a policy maker would exclude such testimony."[103] Bellin states that the relevant policy making body as to the admission of evidence in federal trials is the US congress. It has not taken any step for barring lie detector evidence. Therefore judges who are not authorised to alter the federal

98. 523 U.S. 303 (1998).
99. For instance in *United States* v. *Call*, 129 F.3d 1402, 1406 (10th Cir. 1997), it was ruled that trial court did not abuse its discretion in excluding Polygraph evidence under Rule 403 because, inter alia, such testimony "usurps a critical function of the jury and because it is not helpful to the jury, which is capable of making its own determination regarding credibility." Same view was taken in several other cases as well. See, *United States* v. *Lea*, 249 F.3d 632, 639 (7th Cir. 2001).
100. Bellin Jeffrey, "The Significance (If Any) for the Federal Criminal Justice System of Advances in Lie Detector Technology," Vol. 80, Temple Law Review, 2007, pp.711-742 at pp. 718,719.
101. *See Marks* v. *United States*, 430 U.S. 188, 193 (1977). It was observed that "When a fragmented Court decides a case and no single rationale explaining the result enjoys the assent of five Justices, 'the holding of the Court may be viewed as that position taken by those Members who concurred in the judgments on the narrowest grounds....'. In *Positive Software Solutions, Inc*. v. *New Century Mortgage Corp*., 476 F.3d 278,282 (5th Cir. 2007), the court stated that plurality opinion was not binding precedent except to the extent majority of Justices concurred in reasoning., *cert.denied*, 127 **S.** Ct. 2943 (2007). The jury as exclusive "lie detector" portion of the *Scheffer* opinion was joined by only three other Justices, Chief Justice Rehnquist and Associate Justices Scalia and Souter. *See, Morris* v. *Burnett*, 319 F.3d 1254, 1275 (10th Cir. 2003). The court stated that, the rationale that, jury is exclusive lie detector "did not muster majority support" in *Scheffer*. Justice Thomas's reliance on this rationale was, in fact, specifically criticized by two Justices. *Scheffer*, 523 U.S. at 318. See for details, *ibid.*
102. *ibid.*
103 . *ibid.*

rules unilaterally, cannot properly exclude otherwise admissible evidence based on the principle of jury's traditional role as exclusive lie detector.

Thus Bellin concludes that any *per se* exclusion of lie detector evidence on the ground that it interferes with the jury's traditional function must be backed either by an applicable statute or rule of evidence promulgated by the appropriate policy making body. As there was no such rule or statute currently applicable to the federal district courts, the jury's traditional role as arbitrator of witness credibility is not a valid basis for rejecting lie detector evidence. It may be stated that the view taken by Bellin Jeffery is right as far as this issue is concerned.

When US position[104] is analysed, it could be seen that as per Rule 704(b) of FRE, the expert witness testifying as to the mental state or condition of the defendant in a criminal case shall not state an opinion or inference as to whether the defendant did or did not have the mental state or condition constituting the element of crime. Because, these matters constitute ultimate issue which is the province of the judge. Though this argument seems valid, it is narrow in scope.[105] It should not be considered as significant obstacle for the admission of Forensic Psychological Tests like Polygraph.[106]

Some circuit courts had held that Rule 704(b) applies to all expert witness even beyond psychiatric evidence.[107] The Ninth Circuit had applied this rule with respect to Polygraph expert testimony regarding suspect's answers to questions which indicated

104. In *Grismore* v. *Consolodated Products Co.,* 5 NW 2d 646 (IOWA 1942), it was held that expert evidence should not be rejected merely because it might be decisive of an ultimate fact. This has resulted in the codification of Rule 704 in Federal Rules of Evidence, 1975, which abrogated ultimate issue rule. In 1984, after a mentally disturbed individual attempted to assassinate President Reagan and a deranged fan murdered John Lennon, Congress passed the Insanity Defence Reform Act of 1984, which, among other things, added a new subsection to Rule 704 in order to constrain psychiatric testimony on behalf of defendants asserting the insanity defence. See for details, *ibid.*
105. *ibid.*
106. James Allan Matte, **"**Legal Admissibility of Polygraph Test Results," available at http://www.mattepolygraph.com/legal_admissibility.html visited on 04-06-2017 (accessed on 16/08/2017).
107. *ibid.* See also, *United States* v. *Morales*, 108 F.3d 1031, 1036 (9th Cir. 1997). See also, *United States* v. *Windfelder*, 790 F.2d 576, 580 (7th Cir. 1986). The courts ruled that Congress intended Rule 704(b) to exclude all expert testimony about defendant's ultimate mental state when it would be relevant in proving legal conclusion.

the absence of criminal intent.[108] This issue was discussed by James Allen Matte in his article and he was quoting Jeffery Bellin.[109] In that article the author stated that the prohibition under Rule 704 (b) does not apply with respect to Polygraph Test result due to various reasons. Firstly, most of the Polygraph Test evidence do not pertain to mental state or condition of the defendant and do not come under the prohibition of Rule 702. Rather, the most common use of Polygraph evidence is to establish the credibility of the statements regarding objective facts like he was not present in the scene of crime etc. Secondly, even if the issue at trial revolves around the question of intent whether the alleged crime was premeditated or whether the defendant acted in self defence, Polygraph evidence could be introduced without any direct enquiry as to defendant's state of mind. The questions presented in Polygraph Test may solely be based on objective facts. For instance, if the accused takes the argument that he acted in self defence, the Polygraph examiner need not ask questions directly pertaining to his intent, instead he may ask, whether the deceased threatened to kill the accused, whether he had weapons, who gave the first blow etc. Thus by showing the absence of criminal intent through circumstantial evidence of objective facts, Polygraph expert testimony may avoid conflict with Rule 704(b).[110] Thirdly, Polygraph expert could testify with respect to veracity of suspects answer to an inquiry as to intent without violating ultimate issue prohibition under Rule 704(b).Because there is difference between experts opinion that the suspect acted with certain intent as in the case of self defence and that his opinion that the suspect did in fact acted with that intent.[111]

The prohibition of Rule 704(b) does not bar testimony supporting a conclusion that a suspect does or does not have a requisite mental element, so long as the expert does not draw the ultimate inference for the jury.[112] Thus as far these tests are concerned; at the most the expert could only say that when the defendant voiced an innocent intent, the Polygraph Test indicated truthfulness.[113] Hence Matte concluded

108. *United States* v. *Ramirez-Robles*, 386 F.3d 1234, 1245 (9th Cir. 2004). Rule 704(b) was cited as an alternative justification for excluding portion of proffered lie detector evidence.
109. *supra* n. 106.
110. *ibid.*
111. *ibid*.
112. *United States* v. *Younger*, 398 F.3d 1179, 1189 (9th Cir. 2005). The court was quoting *United States* v. *Morales*, 108 F.3d 1031, 1038 (9th Cir. 1997).
113. *supra* n. 106

that ultimate issue as to the suspect's intent does not necessarily follow from this expert testimony. The prosecution can still raise objections regarding these tests and hence the judge could still conclude that the suspect has the requisite criminal intent. Thus it may be stated that Rule 704(b) has only little significance with respect to Forensic Psychological Tests.

In fact, J. Wilson, in his minority judgment, had discussed this issue in the Canadian Case, *R.* v. *Beland,*[114] and had come to the conclusion that Polygraph evidence do not violate ultimate issue rule. He stated that present day jury is more sophisticated and are not unduly influenced by scientific evidence than they were, when jury system was introduced. He quoted *R.* v. *Wong,*[115] wherein the jury actually convicted the accused, though Polygraph Test results were in their favour. He also stated that Polygraph evidence do not violate ultimate issue rule. Because this evidence is only like other opinion evidence. The jury may or may not accept it. Moreover when any scientific expert opinion is admitted, the jury actually admits evidence which directly goes to the issue deciding the guilt or innocence of the subject. Thus it may be stated that the opinion given by Justice Wilson is more appropriate. Hence it may be stated that evidence based on Forensic Psychological Tests do not violate Ultimate Issue rule.

Moreover, the current trend is to reject or limit this rule. Many scholars[116] had opined that the rule is "unduly restrictive, difficult in application and generally served only to deprive the judge of useful information."[117] In almost all jurisdictions[118] the trend is to abrogate this rule. For instance, in England, as per Section 3 of the Civil Evidence Act, 1972,[119] the ultimate issue rule is abrogated. Though for criminal proceedings no steps are taken so far, since 1967, English courts have showed their

114. *supra* n. 32.
115. (No. 2) (1976), 33 C.C.C. (2d) 511.
116. Wigmore and Mc Cormick, as cited in *supra* n. 10 at p.92.
117. *ibid.*
118. For instance in USA, though in 1984 with the enactment of Rule 704(b), the US Congress took a major step back from its earlier position, by applying ultimate issue rule to testimony relating to mental state of defendant in a criminal case, it does not prevent the expert witness from presenting his clinical diagnosis of the accused's mental condition at the time of act in question. See, *US* v. *Edwards,* 819 F. 2d 262, 265 (11th Cir 1987).
119 . S. 3(1) and (2) declares that opinion evidence by lay witness and expert witness are admissible on any relevant matter.

unwillingness to continue the rule.[120] The precedential analysis of Australian jurisdiction also shows that there is no hard and fast rule regarding the application of the ultimate issue rule.[121] In almost all cases court took a liberal stand and had admitted the expert testimony in spite of its ability to decide the major issue.[122] Hence it may be stated that *Per se* banning of evidence based on Forensic Psychological Tests on the ground that the tests violate ultimate Issue rule is not justifiable.

### *7.2.7 Residual Exception Rules and Forensic Psychological Tests*

Recent trend in some common law countries is to move towards a principled approach for admission of hearsay evidence which is called residual exception.[123] courts in Canada have developed this approach through judicial decisions. In US, this approach is adopted by amending Rule 807 of Federal Rules of Evidence, 1975. According to this approach, hearsay evidence is admitted where it is considered necessary and the evidence exhibits circumstantial guarantees of reliability.

Bellin Jeffery in his article, has stated that lie detection evidence could be admitted into evidence under "residual exception" to the hearsay rules of evidence under Rule 807.[124] Rule 807 states that a statement which is not specifically covered by the exceptions to the hearsay doctrine that has "equivalent circumstantial guarantees of trustworthiness" may be admitted in the following circumstances.

(i) The statement is offered as evidence of material fact.

(ii) That the statement is more probative on the point than any other evidence which could be reasonably procured by the proponent.

(iii) The general purpose of these rules and the interest of justice would be best served by the admission of these statements into evidence.

The object of residual exception is to encourage the progressive growth and development of federal evidentiary law by giving the courts the flexibility to deal with new evidentiary situations.[125] Bellin Jeffery states that one new evidentiary

120. See *DPP* v. *AB and C Chewing Gum Ltd.*, [1967] 2 All E.R 504.
121. *supra* n. 10 at p.86.
122. For instance see, *Murphy*, *supra* n. 95.
123. *supra* n. 100. See also, Collin Tapper, *Cross and Tapper on Evidence,* Butterworth's, London, (9th edn., 1999), p.530, for discussion on traditional exceptions to hearsay rule.
124 . *supra* n. 100.
125. *ibid.*

situation which is potentially well suited to the exception, is the introduction of out of court statements whose substantive truths have been verified by scientifically valid lie detector test. He states that if the lie detection evidence satisfies *Daubert* criteria as to scientific validity, the three important requirements under Section 807 will be automatically satisfied. Because, the materiality requirement is only a restatement of the general requirement, that the evidence must be relevant.[126] The necessity requirement that the statement is more probative on the point than any other evidence which could be reasonably procured by the proponent is also satisfied as the subjects statement during a lie detection examination cannot be duplicated by any other evidence and without these statements the lie detector evidence cannot be presented. The equity requirement is also satisfied as the evidence provide the jury with all significant relevant evidence based on which guilt or innocence may be determined. Thus he states that admission of lie detector evidence is particularly warranted when that evidence is presented by the defence in the light of general constitutional requirement that the accused may be permitted to present important exculpatory evidence.

Regarding the question whether statement made by the subject during lie detector test include "guarantee of trustworthiness" which are equivalent to those required under the other hearsay exceptions in the rules, Bellin Jeffery states that though courts have generally precluded out of court statements of the defendants under residual exception to the hearsay rule, the situation would be different if those statements are made in the contest of lie detection tests. This is because a validation of truthfulness by reliable Forensic Psychological Tests provides a strong "circumstantial guarantee of trust worthiness." which is equivalent to any of those contained in the FRE.[127] In fact, in *Daubert*, the Supreme court itself has recognized that Rule 702's requirement of scientific validity and the trustworthiness required under hearsay exceptions are similar concepts.[128] However Bellin Jeffery states that because of the susceptibility of Forensic Psychological Tests to manipulation and also to other grounds of rejection, would require the proponents of lie detector tests

126. *ibid.*
127. *ibid.*
128. *Daubert* v. *Merrell Dow Pharmaceuticals*, 509 U.S. 579, 591(1993).

to take more steps in maximizing the trustworthiness of these tests so that it may be submitted as evidence in courts.[129] For this purpose, he suggested that the tests must be conducted in a proper manner. He also suggested that the tests must be conducted only after giving notice to the opposing parties and also by allowing the opposing party to be present when the tests are conducted.[130] In *US* v. *Posado,*[131] also court has taken the same view.

It is also important to note some scholars[132] have also argued that hearsay rule has little application in this modern scientific era. Hearsay presupposes that evidence must be given by a person who has personal knowledge of facts. As some scholars[133] argue that presently the presumption loses ground because machines, instruments etc. also perform functions of observing, recording and communicating information. It is important to remember that when hearsay rule was formulated only human beings were able to perform these tasks.[134]

Moreover, the exclusionary rules are only a matter of form, than substance. The courts are hesitant to apply the rules strictly. Present position is that an opinion testimony is not excluded merely because it relates to fact in issue or an ultimate issue or matters which are within the common knowledge of the jury.[135] Legislations in most of the countries also adopted this change. Thus it may be stated that in the present scenario hearsay opinion has limited application in the exclusionary rule.[136]

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129 . *supra* n. 100.

130. *ibid.* In sum, the trustworthiness of any lie detector evidence can be enhanced or undermined by the circumstances surrounding the administration of the test. By giving one's opponent notice and an opportunity to participate in the lie detector examination and by declaring that the witness has not taken and failed other lie detector tests, the proponent of expert testimony regarding that examination will be in the strongest position to argue that the evidence satisfies the trustworthiness and reliability requirements of the applicable Federal Rules of Evidence, particularly the residual hearsay exception of Rule 807. In combination with an adequate showing under *Daubert* of the scientific validity of the lie detection technique utilized, this demonstration of trustworthiness may be sufficient to establish admissibility.

131. *United States* v. *Posado*, 57 F.3d 428, 430-31, 435 (5th Cir. 1995).

132 Anthony F. Sheppard, "Admissibility and Technology," Vol.47 Advocate (Vancouver), 1989, pp.1-23 at p.9.

133. *ibid.*

134. *ibid.*

135. *supra* n. 10 at p.97.

136. *ibid.*

The exclusionary rules were developed against the background of a criminal justice system which was radically different from what we have in this modern era. In those days, accused had no right to fair trial. There was no professional police force, prosecution, no right to bail or right to counsel or right to defence or right to appeal and capital punishment was mandatory rule for several offences. Hence in those times, exclusionary rules were inevitable to protect the rights of the accused. However in the modern era, criminal justice administration is governed by human rights principles. The police, prosecution and defence lawyering have also become scientific and professionalized. Hence *per se* exclusion of Forensic Psychological Evidence which may be relevant to the determination of guilt or innocence may do more injustice than rendering justice.

## 7.3 Exclusion of Evidence Based on Circumstances Extraneous to Fact Finding Process

Another important issue that affects the admissibility of any forensic evidence depends on, the circumstances in which it is collected. In an adversarial system, unfettered discretionary powers are given to police in the matters of investigation, like arrest, search and seizure, interrogation, filing of final report etc. Hence, most of the inroads into human rights may occur during criminal investigation wherein, the collection of evidence takes place. However modern Government based on rule of law has taken several steps to control police power by way of prescribing constitutional norms, statutory principles and also by judicial decisions. Thus constitutionalisation of criminal justice administration has put the rights of accused in a better footing. Moreover, the five fundamental principles of criminal evidence,[137] like factual accuracy, protection of innocent from wrongful conviction, the principle of minimum intervention, the principle of humane treatment, and finally, the principle of maintaining high propriety in criminal proceedings also require that the investigative procedures must be in compliance with the procedures protecting right to fair trial of the accused. Thus, exclusion of

137. See also, Volha Ramaneka, "Restrictions on Admissibility of Improperly Obtained Evidence in Criminal Trial," (LL.M Thesis, Legal Studies Department, Central European University, Budapest, Hungary, November 2011), pp. 8-10, available at www.etd. ceu.hu/2012/ ramanenka_volha.pdf (accessed on 24/07/2017).

evidence which is obtained in violation the rights of the accused is in consonance with these fair trial principles. Therefore, exclusionary rules extraneous to fact finding process have its objective to preserve right to fair trial of the accused.[138]

The basic principle relating to admissibility of this type of evidence is that, even highly relevant and probative evidence might be excluded, if it is obtained by unfair methods.[139] The common law judges are conferred with the discretion to exclude relevant evidence, if the evidence is unfairly / improperly obtained by law enforcement agencies, if it has prejudicial impact on the rights of the accused. For the purpose of the study, improperly obtained evidence may be construed to include both illegally obtained and unfairly obtained evidence.[140] Impropriety may arise in relation to obtaining of confessions and admissions and also in relation to other categories of evidence which may include breaches of internal police guidelines or policy as opposed to the law like entrapment, evidence obtained in deception, under promise of secrecy etc.[141] It is not possible to provide an exhaustive list of what constitutes improperly obtained evidence or determine a priori the manner in which the courts would exercise discretion in this regard.[142]

When most of the common law countries are considered, it could be found that exclusionary rules governing this type of evidence are authorized either by the constitution, statute or by judicial precedents. For instance, US[143] has mandatory

138 . Dennis I, *The Law of Evidence*, Sweet and Maxwell, London, (3rd edn., 2007), p.60.

139 . Tapper Collin, *supra* n. 123.

140 . This is the view taken by New Zealand Evidence Act, 2006.In fact, different criteria is adopted by different jurisdictions. In Australia the public policy discretion to exclude also extends to improperly rather than illegally obtained evidence. In New Zealand, under the new Evidence Act 2006, the statutory category of 'improper evidence' includes both illegally obtained and unfairly obtained evidence. In England and Wales, conduct considered unfair in the circumstances, such as trickery, resulting in the obtaining of evidence, will be able to be excluded in the exercise of the general fairness discretion. In other jurisdictions the question will be whether some Constitutional right has been violated because of or as an incidence of an improper practice on the part of the authorities (eg circumvention of the right to silence or to have counsel present). In other cases where confessions or admissions are concerned the basis for exclusion may be a lack of voluntariness. For a detailed discussion, see, William van Caenegem, *New trends in Illegal Evidence in Criminal Procedure: General Report - Common Law*, Law Faculty Publications, September 2007, 1-32, at pp.15-19 available at, http://epublications .bond.edu.au/cgi/viewc ontent.cgi?article=1222& context=law_ pubs (accessed on 08/09/2017).

141 . *ibid.*

142 . *ibid.*

143. The exclusionary rule was first enunciated in *Weeks* v. *US*, 232 US 383 (1914), wherein certain letters were seized without warrant. The court held that the evidence being obtained is in

exclusionary rule provided in the Constitution and statute. However, the judicial techniques have moderated this approach by crafting exceptions for illegally obtained evidence under certain circumstances. In New Zealand,[144] all the rules as to admissibility of improperly obtained evidence in criminal proceedings are consolidated in Section 30 of The Evidence Act. The court must engage in balancing process by referring to the factors stated in the statute to determine admissibility. In Canada,[145] power of the courts to exclude improperly obtained evidence is provided

violation of IV Amendment of US Constitution, could not be used as evidence against the defendant. Later in *Mapp* v. *Ohio,* 367 U.S. 343 (1961), the rule was made binding on states. The statutory recognition of exclusionary rule is provided in R.402 of The Federal Rules of Evidence, 1975. The rule states that all relevant evidence is admissible except as provided by US Constitution, by Act of Congress or applicable rule. This means that to exclude evidence from the proceedings, it is necessary to justify exceptions explicitly mentioned in the rules. R.403 provides that judge has to assess certain factors like danger of unfair prejudice, confusion of the issues, misleading the jury, undue delay, waste of time etc, when he admits or excludes certain evidence. Evidence obtained by torture and other ill treatments are automatically excluded during trial. But derivative evidence based on coerced confessions is not automatically excluded. The courts consider them on case by case basis as per the requirements of reliability and the fairness of proceedings. US courts adopt due process standard to determine voluntariness. The subsequent statements and derivative statements are analysed in the light of impact of coerced confession and fair trial rights. Thus it may be stated that though US has mandatory exclusion rule, the judicial techniques has moderated this approach by crafting exceptions for illegally obtained evidence under certain circumstances. For example, if good faith is present and a breach is technical in nature, evidence will not be excluded (eg where a search is illegal due to a technical failing of the warrant document); Similarly, evidence will not be excluded where circumstances of public emergency resulted in the evidence being obtained in a manner which breached some constitutional guarantee. See *ibid*.

144. When position in New Zealand is considered, all the rules as to admissibility of improperly obtained evidence in criminal proceedings are consolidated in Section 30 of Evidence Act. The provision requires that the court must engage in balancing process by referring to the factors stated in the statute to determine admissibility. If, on balance of probabilities, court determines that the evidence had been improperly obtained, it would further determine whether or not to exclude evidence based on the non exhaustive factors laid down in Section 30(3) of The Evidence Act. The factors include importance of the right that is infringed and the seriousness and nature of intrusion; the nature and quality of improperly obtained evidence; the seriousness of the offence with which accused is charged; whether there was any alternative investigative procedure than the one which is challenged and which may not involve breach of right; whether there is any alternative remedy than exclusion of evidence which would adequately provide redress to the accused; urgency of obtaining improperly obtained evidence etc. Thus the court actually focuses on Bill of rights for exclusion. Several rights enumerated in the Bill of Rights include rights ensuring minimum standards of criminal procedure. see *ibid*.

145. In Canada, the power of the courts to exclude improperly obtained evidence is provided in Canadian Charter of Rights and freedoms. The charter provides that any person whose rights and freedoms guaranteed in this charter are infringed, could apply to the court of competent jurisdiction for appropriate remedy. If in such a proceeding, the court concludes that evidence was obtained in a manner that infringed or denied any rights or freedoms guaranteed by this charter, the evidence shall be excluded, if it is established that, having regard to all the circumstances, the admission of it in the proceedings would bring the administration of justice to disrepute. Though in Canada there is no mandatory exclusion, the evidence which is conscriptive and non discoverable would be excluded. As far as other cases are concerned, the

in Canadian Charter of Rights and Freedoms. If the court concludes that evidence was obtained in a manner that infringed or denied any rights or freedoms guaranteed by this Charter, the evidence shall be excluded, if it is established that, the admission of it would bring the administration of justice to disrepute.

In India, the only test for the admissibility of evidence is relevance test.[146] The judicial attitude is that every deviation from the prescribed procedure will not vitiate the trial. But it is important to note in every criminal case, a judge has discretion to disallow evidence, even if it is relevant and hence inadmissible, if its admissibility would operate unfairly against an accused.[147] However, this discretion is not considered as part of rule of evidence, but as part of prudence and fair play which is fundamental to adversarial system as observed by Justice Verma in *Nathooni Singh and etc.* v. *State of UP*. [148] In short it may be stated that in appreciating the evidentiary value of illegally obtained evidence, no mathematical formula or exhaustive parameter could be laid and it depends on the factual circumstances of each case.[149] Thus it may be stated that Indian courts have residual

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factors like good faith, intentionality etc, urgency, availability of other legal means, seriousness of the crime, probativeness of evidence etc. are considered to determine whether to admit or exclude improperly obtained evidence. See *ibid.*

146. Indian Evidence Act 1872, Ss. 5-55.

147 . *Callis* v. *Gunn*, [1964] 1 QB 495, 501 *per* Lord Parker C.J.

148 . 1994 Cri.L.J. 3.(All.).The position was reiterated in many cases.

149 . *State of Punjab* v. *Labh Singh*, (1996) 5 S.C.C. 520. The Law Commission of India way back in 1983, in its 94th Report, had recommended that a new Chapter containing a new section 166 A, should be inserted in the Indian Evidence Act, 1872, on the following lines:
Section 166 A: 'Evidence obtained illegally or improperly'.

(1) In a criminal proceeding, where it is shown that anything in evidence was obtained by illegal or improper means, the court, after considering the nature of the illegality or impropriety and all the circumstances under which the thing tendered was obtained, may refuse to admit it in evidence, if the court is of the opinion that because of the nature of the illegal or improper means by which it was obtained its admission would tend to bring the administration of justice into disrepute.

(2) In determining whether evidence should be excluded under this section, the court shall consider all the circumstances surrounding the proceedings and the manner in which the evidence was obtained, including-

(a) the extent to which human dignity and social values were violated in obtaining the evidence;

(b) the seriousness of the case;

(c) the importance of the evidence;

(d) the question whether any harm to an accused or others was inflicted willfully or not, and;

(e) the question whether there were circumstances justifying the actions, such as a situation of urgency requiring action to prevent the destruction or loss of evidence.

But unfortunately, this has not yet been incorporated into the statute yet. See, Justice K.K. Mathew, *94th Report on Evidence Obtained illegally or Improperly, Proposed Section 166A Indian Evidence Act, 1872*, Law Commission of India, (1983), p.37.

power in admitting evidence even obtained through illegal means on a balance of considerations.[150]

It may thus be stated that the Common law system places high value to individual human rights. Hence it is important that law enforcement agency do not collect evidence in a manner which is inhuman and arbitrary. It is the judiciary which assures that law enforcement agency does not exceed its powers prescribed by law by interpreting the constitutional and statutory provisions. The court also adjudges the admissibility of the evidence collected by the police during investigation. Hence adversarial system is characterised by elaborate rules of evidence as to admissibility and exclusion of evidence. In this system, the rules of evidence are the means by which the courts exercise retrospective control over the manner in which investigations are conducted. Hence it is important to analyse whether the evidence based on Forensic Psychological Tests satisfies rules as to admissibility and exclusion of evidence on grounds extraneous to fact finding process.

### *7.3.1 Forensic Psychological Tests and Evidentiary Barriers: Judicial Approach*

When case laws and scholarly articles dealing with Forensic Psychological Tests in common law countries were considered, it is found that only courts in USA, Canada, New Zealand and India have dealt with this issue.

#### *7.3.1.1 Position in USA*

In USA, there are both for and against views regarding Polygraph, BEOS and Narco Analysis Test. For instance in *State* v. *Lyon,*[151] Justice Linde has raised the legal issue of violation of human dignity. There are also some opinions which suggest that Polygraph Test violates right to mental privacy.[152] At the same time, there are many scholarly articles which criticises the concept of mental privacy and also states that the test does not violate the right.[153]

150 . V.R. Dinakar , *Justice in Genes: Evidential Facets of Forensic DNA Fingerprinting,* Asia Law House, Hyderabad, ( 2008), p.237.

151 . *State* v. *Lyon,* 744 P.2d 231,238 (Or. 1987) (Linde, J., concurring).

152 . Jane Campbell Moriarty, "Visions of Deception: Neuro Images and the Search for Truth," Vol. 42(3), Akron Law Review, 2009, pp.739 -761, at p. 744.

153. Kiel Brennan-Marquez, "A Modest Defense of Mind Reading," Vol. 15, Yale Journal of Law and Technology, 2013, pp.216-272 at pp. 256-264.

Regarding Narco Analysis, the forensic use of the truth drug was disapproved by US Supreme Court in *Townsend* v. *Sain.*[154] C.J. Warran observed,

> "If an individual's will is overborne or if his confession was not the product of rational intellect and free will,' his confession is inadmissible as it is coerced."[155]

Thus the US Supreme Court held that the statement made under truth drug interrogation as *inadmissible on the ground that confession is involuntary*. There are also scholarly opinions that Narco Analysis amount to torture, both physical and psychological.[156] However it is important to note that after 9/11 there is more public opinion in favor of acceptance of the test especially in the fight against terrorism.[157]

### 7.3.1.2. *Position in New Zealand*

When position in New Zealand is considered with respect to Forensic Psychological Tests, in *R.* v. *McKay,*[158] Justice Mc Carthy in New Zealand Court of Appeal observed that "the use of drugs and instruments like Polygraph delve into human unconscious mind and clashes with upholding of human dignity." There are also scholarly opinions which states that Forensic Psychological Tests mainly neuro

154. 372 U.S. 293 (1962). In that case, the defendant was arrested on the suspicion of having committed murder and robbery. When he showed withdrawal symptoms, police sought the help of physician. In order to treat him the doctor injected hyosine having same effect as scopolamine. The dosage had calming effect on the defendant. After the doctor's departure, he responded to the questioning of police and also made some confessional statements, which were duly recorded by court reporter. The next day when he was taken to prosecutor's office he signed those statements which were recorded by the court recorder on the previous day. But when the case came for trial, the defendants counsel brought a motion for the exclusion of the transcripts of statements as evidence. The trial judge denied this motion and admitted those statements into evidence. The jury found him guilty leading to his conviction. As the trial courts and higher courts found against the defendant, the matter was seized by Supreme Court. Both majority and dissenting judge agreed that confession induced by administration of drug is constitutionally inadmissible in a criminal trial.
155. *id*. at pp.307-309.
156. Linda M Keller, "Is Truth Serum Torture?," Vol.20 (3), American University International Law Review, 2005, pp.521-612.at pp.603-609.
157 . The two Office Memorandum's (OM) regarding the interpretations of US obligations under CAT, released by the Office of legal counsel (OLC) in 2002 and Department of Defense (DOD) working groups in 2003 have taken very narrow interpretation of torture limiting it to death, loss of limb or organ function. In addition these memos asserted the controversial position that torture could be justified by necessity, self defense and or the commander in chief's power. Thus it may be stated that official policy of US after 9/11 is more inclined to protect security interests. See, *ibid*.
158. *R.* v. *McKay,* [1967] NZ L R 139.

imaging tests violates cognitive liberty.[159] It is stated that though these tests could not read actual thoughts or feelings, they are considered to intrude into "most private aspect of what it means to be human mind.[160]

### 7.3.1.3. *Position in Canada*

In Canada, though regarding Narco Analysis, there is no direct case law, but as to hypnosis some case laws are there. In *Selvi* decision[161] it was stated that Narco Analysis could be compared to that of hypnotic state.[162] *Selvi* has discussed the landmark Canadian decision, *Horvath* v. *R.*[163] dealing with hypnosis. In *Horvath* v. *R.*,[164] the Supreme Court of Canada held that statements made in hypnotic state were not voluntary and hence they cannot be admitted in evidence. It was also held that if post hypnotic state related to statements made during hypnotic stage, it is inadmissible.

In *Horvath*, the court considered the question whether the statements made under a hypnotic state could be equated with those obtained by "fear of prejudice "or "hope of advantage" exercised or held out by a person in authority. [165] The court held that the inquiry as to voluntariness should not be limited to these expressions. J. Spenser held that, the total circumstances of the case must be taken into consideration. In that particular case, as the interrogation of the accused had resulted

159. Phoebe Beth Harrop, "Minority Report or Majority Safety? FMRI, Predicting Dangerousness and a Pre-Crime Future," (Dissertation, Bachelor of Laws (Honours), University of Otago – Te Whare Wananga o Otago. 11th October 2013), p.44, available at http://www.otago.ac.nz/law/research/journals/otago065271.pdf (accessed on 13/10/2017).
160. *ibid.*
161. *Selvi*, *supra* n. 12.
162. *id.*at p.307.
163. *Horvath* v. *R.*, (1979) 2 S.C.R. 376.
164. *ibid*. In this case a boy of 17 years who was charged for the murder of his mother was interrogated by a police officer who had training in hypnotism. By using that knowledge, the officer obtained confession from the defendant. The accused repeated those confessions before the investigating officers and signed the confession statements. The trial judge held that these statements are inadmissible in evidence. Hence the accused was acquitted. The Court of Appeal reversed this decision and hence appeal was made to the Supreme Court.
165. In this case the court referred to the English decision of *Ibrahim* v. *R.*, [1914] A.C. 599 at 609, wherein it was observed by Lord Summer that "it has been long established as a positive rule of English criminal law, that no statement made by the accused is admissible in evidence against him unless it is shown by the prosecution that it is a voluntary statement, in the sense that it has not been obtained from him either by fear of prejudice or hope of advantage exercised or held out by a person in authority."

"in his complete emotional disintegration,"[166] the statements made by him are inadmissible. Thus, as per Canadian jurisprudence, the ground on which Narco Analysis was disallowed is the violation of mental privacy.

### *7.3.1.4. Position in India*

When Indian position is examined, it could be seen that prior to *Selvi*, in several cases court had considered whether investigative use of some of the Forensic Psychological Tests violate human rights norms which affects their admissibility as evidence in trial . In *M.C. Sekharan* v. *State of Kerala,*[167] the Kerala High Court held unequivocally that it is against the fundamental human rights of an accused. But this is not the ratio of the case. In 2006, the apex court stayed the order of a metropolitan judge to conduct Narco Analysis on K Venkateswara Rao in *Krushi Cooperative Urban Bank* case.[168] In that case, Gujarat Forensic Science Laboratory had refused to conduct Narco Analysis on the subject when he refused consent. But metropolitan judge ordered the laboratory to conduct the test.

However, the general trend of the decisions of High Courts prior to *Selvi* was in favor of permitting the tests as an investigative aid.[169] The judiciary might have taken this approach as a solution to the threat of internal security faced by the country.[170] It was in this background *Selvi* was decided by the Supreme Court. *Selvi* delve deeply into the constitutionality and admissibility of some of the Forensic Psychological Tests and held that the compulsory administration of these tests would violate right against self-incrimination. The court also held that forcing the individual to undergo the tests would result in violation of substantive due process. The

166 . In the same case, J. Beetz in his concurring judgment had observed that the police through his interrogation method have gained unconscious access to what in a human being is of utmost importance which is privacy of his own mind. Justice Beetz stated that even consensual use of Hypnosis and Narco Analysis for evidentiary purpose is problematic. *supra* n. 163.

167 . 1980 Cri.L.J. 31( Ker).

168 J . Venketesan, "Apex Court Stays Narco Analysis Test on Krushi Bank MD," The Hindu, November 20, 2016, available at http://www.thehindu.com/todays-paper/apex-court-stays-narcoanalysis-test-on-krushi-bank-md/article3049107.ece (accessed on 13/10/2017).

169 . *Rojo George* v. *State of Kerala,* 2006 (2) K.L.T. 197. The Court held that when the tests are conducted in the presence of experts, there is no question of violation of human rights of any citizens.; *Santokben Sharmabhai Jadeja* v. *State of Gujarat,* 2008 (2) K.L.T. 398;. In all these cases courts have upheld the constitutional validity of Polygraph, BEOS and Narco Analysis Tests.

170. Anjenaya Das and Aarun Kumar, "Narco Analysis and the Shifting Paradigms of Article 20(3): A Comment on *Selvi* v. *State of Karnataka*," 2011Cri.L.J.94.(Journal).

violation would occur irrespective of whether these techniques are forcibly administered during the course of the investigation or for any other purpose, as these test results could also expose a person to non penal consequences. The compulsory administration of the tests is unjustified intrusion into the mental privacy of the subject. It also would amount to cruel, inhuman and degrading treatment and would also violate right to fair trial. Thus the court concluded that no individual could be forcibly subjected to the impugned tests for the purpose of investigation of criminal cases or otherwise. If it is done, it would amount to unwarranted intrusion of right to personal liberty.

The court however left room for the voluntary administration of the test for the purpose of criminal justice, if certain safeguards are in place. Even then the test results by themselves could not be admitted in evidence. But the court held that if any material or information is subsequently discovered with the help of the evidence obtained as a result of voluntarily administered test, it could be admitted in evidence under Section 27 of The Indian Evidence Act, 1872.

Since most of the common law courts have also raised same issues against these tests, it is important to consider whether the tests violate right against cruel inhuman and degrading treatment and mental privacy. If evidence is obtained in violation of these rights it is *per se* excluded. So it is important to analyse whether investigative use of the Forensic Psychological Tests violate these rights.

### *7.3.2. Forensic Psychological Tests and Right Against Torture and Other ill Treatments*

As there exist no comprehensive legislation governing torture in India, It is important to look into International Human rights Instruments banning torture and other ill treatments like International Covenant on Civil and Political Rights, 1966,[171] The Convention Against Torture and Other Cruel, Inhuman and Degrading Treatment and Punishment, 1984 etc., for the definition of torture. It is also important to analyse whether the tests would come within the ambit of those definitions under the international human rights instruments.

171 . Herein after referred as ICCPR.

#### *7.3.2.1. Convention Against Torture*

The Convention Against Torture has defined torture as " any act by which severe pain or suffering whether physical or mental, is intentionally inflicted on a person for such purposes as obtaining from him or a third person information or a confession, punishing him for an act he or a third person has committed, or intimidating or coercing him or a third person, or for any reason based on discrimination of any kind , when such pain or suffering is inflicted by or at the instigation of or with the consent or acquiescence of a public official or a third person acting in an official capacity."[172] It does not include pain or suffering arising only from or inherent in or incidental to lawful sanctions.[173] The convention also requires the state to prevent other acts of cruel, inhuman or degrading treatment or punishment which do not amount to torture, when such acts are done by or at the instigation or consent or acquiescence of public official or other person acting in an official capacity.[174] However the convention has not defined these acts.

##### *7.3.2.1.1. Intentional Infliction*

When we analyse the ingredients of the definition further, torture is an act of intentional infliction of severe pain or sufferings. It actually means that the definition of torture includes not only positive acts of commissions but even omissions.[175] It is also stated that many authors have also included recklessness within the definition of intention.[176]However inclusion of recklessness within the ambit of intention has been subjected to severe criticism by many scholars including Professor Glanville Williams.[177]

172. Herein after referred as CAT.CAT, Art. 1.
173. *ibid.*
174. CAT, Art. 16.
175. Nigel Rodley and Matt Pollard, "Criminalization of Torture: State Obligations Under the UN Convention Against Torture," European Human Rights Law Review, 2006, pp.115-141 at p.120; *Guide on Anti Torture Legislation*, The Association of Prevention of Torture and Convention Against Torture Initiative, Geneva, Switzerland,(2016) at p.14, available at http://www.apt.ch/content/files_res/anti-torture-guide-en.pdf( accessed on 09/09/2017).
176. But negligence was not considered as sufficient to constitute intention. In 2007, when there was a discussion of the report of Denmark, one member had expressed his disagreement to include negligence in criminal liability. See Discussion of Denmark, CAT, summary record of the 757th meeting, UN Doc.CAT/C/SR.757 (8May2007), S 35 as cited in Centre for Justice, *Torture in International Law: A Guide to Jurisprudence*, Centre For Justice and International Law, USA and Association For Prevention of Torture, Geneva, 2008 at p.12, available at http://www.apt.ch/content/ files_res/jurisprudenceguide.pdf (accessed on 31/08/2013).
177. Glanville Williams, *Text Book of Criminal Law*, Universal Law publishing Co Ltd, New Delhi, (2nd edn., 2003), p.84. Professor Glanville Williams had stated that Parliament regularly enacts

When we take ordinary meaning of the term intention as given by oxford dictionary, intention means… that which is intended or purposed; a purpose or design; ultimate purpose; the aim of an action…."[178] This definition aims at direct intention. If a particular consequence is prohibited by law and it is wanted for its own sake, it is called direct intention. But in some cases, the person may not aim or desire to cause a prohibited consequence, but realizes that he *will cause it or certain to cause it,* and goes ahead and pursues his true aim and purpose. The foresight of this kind, without aim or purpose is also included in the definition of intention and it is called oblique intention. Glanville Williams states this as side effect. *i.e.* the result is not in the straight line of defendant's purpose but a side effect which he accepts as inevitable.[179]

In the case of Forensic Psychological Tests, the interrogators do not desire physical or mental sufferings nor do they intentionally inflict severe physical or mental pain. Hence direct intention will not apply. However it is alleged that mental pain or sufferings may occur. These pain or sufferings, if at all occurs is actually a side effect of the tests. So only oblique intention would be there. Hence, it is important to consider the nature of the knowledge or foresight of mental consequences involved in these tests.

In this contest, it is important to note that the perusal of the decisions right from *R.* v. *Smith,*[180] indicates that there is lack of clarity in this aspect.[181] Where the actor has aim or purpose, he is only required to foresee some chance of success. He is not required to prove any high degree of probability of success. It is only in the absence of aim or purpose to cause a result, as in the case of oblique intention, the

offences in terms of two parts; i.e. requirement of intention or recklessness. This clearly implies that recklessness is distinct from intention. He also states that the judges generally sentence much more leniently for recklessness than for intentional crimes even when the statutory maximum is same in both cases. Because they see great moral and social difference between the two.

178. Mike Molan, *et al., Bloy and Parry's Principles of Criminal Law,* Cavendish Publishing Limited, London, (4th edn., 2000), at p.61.
179. *supra* n. 177.
180. [1959] 2 QB 35.
181. *supra* n. 177.

foresight of the actor assumes importance. The analysis of case laws[182] revealed that to constitute intention, the defendant must foresee the consequences as virtually certain.[183]

In short it may be stated that, foresight as to consequences in order to amount to intention, must be something more than likely or probable consequence. It seems that in the absence of desire, *the foresight must be virtually certain to amount to intention*. If such a proposition is taken, it may be stated that in the investigative use of all Forensic Psychological Tests, the investigators are not inflicting pain and their desire is only to obtain information. Mental pain if any occurs is only a side effect of the administration of the test. If this view is taken, it may be stated that involuntary administration of all these scientific tests would not fall within the purview of the definition of torture.

However, in all these tests the interrogators may foresee mental sufferings as very rare or a likely consequence. But, it is not a reasonable consequence. Hence, it could not be taken even as recklessness. Even if it is assumed as recklessness, even then it would not come within the definition of torture. Because as per scholarly opinions, recklessness is distinct from intention[184] and there are great moral and social differences between the two. Therefore, it may be stated that involuntary administration of Forensic Psychological Tests do not fall within the prohibitive scope of intentionality requirement and do come within the ambit of the definition of torture under CAT.[185]

182 . *R.* v. *Mrs Hyam* , [1975] A.C. 55(H.L). *R.* v. *Moloney*, [1985] I All E.R. 1025. and *R.* v. *Hancock and Shankland*, [1986] 2 W.L.R. 257. *R.*v. *Nedrick*, (1986) 83 Cr App.267**.** and *R.* v.*Woolin*, [1999] A.C. 82(H.L). House of Lords in *Molony and Hancock* had not specified foresight of a minimum degree of probability, but the Court of Appeal in *Nedrick* asserted that jury must be satisfied that defendant foresaw the consequences as virtually certain.

183. *supra* n.177. In the opinion of Professor Glanwille Williams also, "the proper view is that intention includes not only desire of consequence but also foresight of certainty of the consequence, as a matter of legal definition. See also, *supra* n. 178.

184 . *supra* n. 177.

185 . For the same reason it may be stated that involuntary administration of Narco Analysis do not amount to psychological torture also.

When we analyse the history of CAT, it could be seen that Barbados had specifically suggested that the definition of torture be expanded to include the use of truth drugs.[186] Thus it may be stated that if the drafters of the convention had an intention to ban truth serum interrogation, they had an opportunity for the same. Their decision to go against that move clearly indicates that truth serum interrogation is not torture and that the convention is not applicable with respect to truth serum interrogation. [187] Thus may be stated that investigative use of all Forensic Psychological Tests including Narco Analysis Test do not fall within the definition of torture under CAT.

#### *7.3.2.1.2. Forensic Psychological Tests and Cruel, Inhuman or Degrading Treatment or Punishment*

Now it has to be analysed whether Narco Analysis Test falls under the category of cruel, inhuman or degrading treatment or punishment. The Committee Against Torture[188] itself has recognised that the distinction between torture and other forms of ill treatment is not clear.[189] It may be stated that if the force is legally used under the domestic law for a lawful purpose[190] and if the force applied is *not excessive and is necessary for that purpose,*[191] then the act will not be regarded as cruel, inhuman or degrading treatment.[192] This means that even in the situation of lawful detention or social control, if no proportionality rule is applied, and if any form of mental or physical pressure or coercion results it may be considered as cruel, inhuman or degrading treatment. It is true that truth serum is not forbidden under Article 1. But that do not preclude the finding that it is precluded under Article 16.[193] Hence it is important to consider whether Narco Analysis would amount to ill treatment.

186. Jason R Odeshoo, "Truth or Dare?: Terrorism and Truth Serum in the Post 9/11 World," Vol.57, Stanford Law Review, 2004, pp.209-255 at p.244.
187. *ibid*.
188. This is the monitoring body which monitors the compliance of the convention by the state parties.
189. For the purposes of the CAT, cruel, inhuman or degrading treatment may "not amount to torture" either because it does not have the same purposes as torture, or because it is not intentional, or perhaps because the pain and suffering is not "severe" within the meaning of Article 1.*supra* n. 176 at p.151.
190 . Manfred Nowak, *U.N. Covenant on Civil and Political Rights: CCPR Commentary,* NP Engel, Strasbourg, ( 2005), p. 250.
191. Proportionate.
192. Manfred Nowak and Elizabeth McArthur, *United Nations Convention Against Torture: A Commentary*, Oxford University Press, Oxford/ New York, (2008), p.558.
193. *supra* n. 186.

In the case of tests other than Narco Analysis, in the present scenario there is no issue of ill treatment. In fact, it could be seen that even without consent, it do not violate proportionality test. The tests are conducted for the purpose of collecting evidence and in the case of these tests no force is used to conduct the test and there is no physical harm, though some discomfort may be caused. In the present scenario lawyer is present while administering all these tests. The tests are also conducted based on court order. Moreover the laboratory conducts the test only after getting consent. Hence investigative use of these tests does not amount to ill treatment within the meaning of CAT.

Same safeguards apply in the case of Narco Analysis Test also. Apart from these safeguards, the test is also conducted in the presence of an anaesthetist, physician and a nursing staff with all facilities to safeguard in case of any causality. The test is conducted only after prior medical test. From the empirical study, it is revealed that only in very rare cases Narco Analysis Test is conducted and the whole procedure is video graphed. Hence the procedure of Narco Analysis Test do not violate proportionality test. Moreover as per preconvention discussions on CAT and ICCPR,[194] it is clear that administration of Narco Analysis Test do not amount to torture, cruel, inhuman or degrading treatment or punishment. Therefore investigative use of Narco Test also does not amount to any form of ill treatment.[195]

194. The Egyptian delegate had proposed to add a ban on the use of dangerous drugs and he was specifically requesting a ban on sodium pentothal. However Eleanor Roosevelt who was acting as chairman of the drafting committee rejected the proposal. Egypt's proposal to include mental torture within the ambit of torture was also rejected as exceedingly broad. Thus, the preconvention discussions clearly militate against the assertion that truth drug amounts to torture or other cruel, inhuman or degrading treatment or punishment. See, *supra* n. 176 at p. 12, See also, *ibid*.

195. There are arguments that Narco Analysis Test is in contravention of Principle 21(2) UN Body of principles for the protection of All Persons under Any Form of Detention or Imprisonment which states that "no detained person while being interrogated be subjected to violence, threat or methods of interrogation which would impair his capacity of decision or judgment." *supra* n. 12. When we analyse Polygraph, BEOS and LVA ,these tests undoubtedly will not affect the capacity of judgement or decision making power of the person subjected to it. But regarding Narco Analysis, the subject is at least temporarily deprived of his capacity to decision or judgment. However as quoted by Tullio Treves, The Body of Principles lacks any legal effect. It is not a treaty, but only a document attached to a General assembly Resolution. Hence it does not have any binding force as such. Moreover as per preconvention discussions on CAT and ICCPR, it is clear that administration of Narco Analysis do not amount to torture, cruel, inhuman or degrading treatment or punishment. See, Tullio Treves, "The UN Body of Principles for the Protection of Detained or Imprisoned Persons," Vol. 84(2), American Journal of International Law, April 1990, pp. 578-586 at p. 585.See, *ibid*.

Thus it may be stated that involuntary administration of Forensic Psychological Tests like Polygraph, BEOS and Layered Voice Analysis for investigative purpose do not amount to torture or cruel inhuman or degrading treatment or punishment. However in, Narco Analysis, as anaesthetic procedure is involved, consent must be mandatorily taken.

### *7.3.3 Forensic Psychological Tests and Right to Mental Privacy*

One of the main criticisms against Forensic Psychological Tests is that it violates mental privacy. In *Selv*i, the apex court held that though physical privacy is not an absolute right, mental privacy is not so. It cannot be curtailed on any grounds. Kiel Brennan in his scholarly article has considered the issue of mental privacy, with respect to mind reading machines.[196] He states that there are two problems relating to privacy based arguments.

(i) Arguments favouring mental privacy do not offer a way for distinguishing between background mental states like intoxication etc., from higher order mental states like knowledge or belief.

(ii) Privacy problem is usually associated with self-incrimination problem whereas when it is actually Fourth Amendment problem.

As per the concept of mental privacy, only higher order cognitive states[197] are protected and background mental states[198] are not protected. For instance, Sobriety tests which ascertains level of intoxication i.e. background mental states etc., are considered as legal. However it is important to note that all these data whether background mental states or higher order cognition[199] like knowledge or belief, actually speaks in a broader sense to ones cognition. As to this issue, Kiel states that although on epistemological / metaphysical grounds, it is possible to distinguish a person *being agitated* from his *knowledge that a body is buried in his backyard*, on experimental grounds, the task is very much harder.[200] Kiel states that he could not

196. *supra* n. 153at pp.256-264. Forensic Psychological Tests are analogous to these tests.
197. His knowledge that a body is buried in his backyard.
198 . Being agitated.
199 . It may be true that latter are outcomes of cognitive process and that these mental states are at a higher level than anger or intoxication.
200. *supra* n. 153.

distinguish between desires to control feelings of agitation from a desire to control specific knowledge states.[201] For evidentiary purposes also, the boundary between higher level cognition and background mental states are blurred. This means that evidence of higher level cognition might serve as evidence for background mental states and vice versa. Therefore taking cue from Kiel's argument, it may be stated that the concept of mental privacy is an ambiguous one.

Regarding the second issue, privacy theory conflates the location of seizure (here it is the mind) with the essence of thing seized. The fact that a piece of evidence comes from a location regarded as private or sacred is not a normal ground for erecting substantive protection, but a ground for erecting procedural protection.[202] But the proponents of privacy theory want absolute prohibition of seizure of cognitive evidence, because as they consider it as inherently unreasonable. They demand for substantive protection of mental privacy under Fifth Amendment self-incrimination clause, based on the argument that certain domains and evidences are so sacred that searches and seizures of those types of evidences are never warranted even if criminal justice system suffers for it.[203]

Kiel in his article, analyses the relationship of the proposition by those who argue for substantive protection,[204] to the laws governing criminal procedure. He states that no spatial domains[205] and only a few types of evidence are substantively protected in this manner. It is not because the evidence is intrinsically sacred but because the evidence is privileged for the reasons related to social relationship they

201. *ibid.*
202. Micheal Pardo, "Disentangling the Fourth Amendment and the Self Incrimination Clause," Vol. 90, Iowa Law Review, 2005, pp.1857-1903 at p.1874. The author states, this identification of sacred or private space goes to the Fourth Amendment and not to the Fifth Amendment.
203. *supra* n.153.
204. Keil discusses many scholarly articles and states that none of the works give strong reasons as to why there should be substantive protection to right to privacy. . See, Nita A. Farhany, "Incriminating Thoughts," Vol.64, Stanford Law Review, February 2012, pp.351-408. Stoller, S. E. & Wolpe, P. R., "Emerging Neuro Technologies for Lie Detection and the Fifth Amendment," Vol.33, American Journal of Law and Medicine, 2007, pp-359-375. Kiel states that their view also do not distinguish between high order cognition, background mental states etc.
205. Michael S. Pardo, "Neuroscience Evidence, Legal Culture, and Criminal Procedure," Vol. 33, American Journal of Criminal Law, 2006, pp. 301-337 at p.326. The author states that the courts have dismantled the idea of an "inviolable zone" in the criminal procedure contest. Inviolable zone was once suggested by *Boyd v. United States*, 116 U.S. 616, 633–38 (1886), overruled by *Warden* v. *Hayden*, 387 U.S. 294 (1967).

implicate. For example lawyer- client privilege, doctor - patient privileges which are justified. But they are justified not on the grounds of right to silence or privacy but on the ground that in the absence of such privilege these professionals would be unable to perform their proper roles.[206]

Kiel states that state usually encroaches on citizen's liberty, privacy and autonomy when valid prerogatives outweigh them. Detection of crime and criminal prosecution which is central state function is such a valid prerogative. That is the reason for Fourth Amendment taking procedural form. Its purpose is to modulate the inherent tension that arises between due process on one hand and administration of justice on another. This balance between goals of criminal justice administration and individual rights are so delicate that the vindication of privacy when it comes to procuring evidence for criminal prosecution lies in the qualification of context than out right prohibition.[207] It may be stated that all the arguments raised by Kiel with respect to mind reading machines are equally applicable in the case of Forensic Psychological Tests. These tests are mainly used as an investigative aid for the collection of evidence by the police. Hence whether there is infringement of privacy rights should be analysed based on facts and circumstances of the case.

It may thus be stated that, the concept of mental privacy is an ambiguous concept. Mental privacy as privacy interest would come only within the ambit of Fourth Amendment protection and it would not come under Fifth Amendment. It cannot be given substantive protection. Therefore the right is not an absolute one.

Moreover law do not out rightly prohibit evidence from the mind. Of all sources of evidence for criminal prosecution; most promising one is the mind of the accused. For instance, confession which is voluntary and reliable is admissible

206 . Same is the case with spousal privilege, which must also be understood as a safeguard to protect the integrity of marital relationship as a whole. This is asserted by certain facts. For instance this privilege attaches to both the spouses and not the one facing prosecution. This clearly suggests that the object is to protect the integrity of marital union and not the privacy interest of one spouse. Similarly in the case of legal action between married parties privacy theory is substantially undermined. See, *supra* n. 153.

207. *ibid.*

evidence. [208] It is nothing but evidence from the mind. It is the direct acknowledgement of full subjective awareness of culpability by the person who has committed the same. Apart from these, suspicious statements or behaviour from which state of mind of the person is evident are also relevant facts.[209] Contents of mind can also be in the form of previously written down documents or in the form of electronic data. These data may be obtained by means of search warrant, subpoena etc. Similarly, the constitution does not forbid citizens to disclose some knowledge or recollections which might incriminate or convict others. This evidence are admitted as primary evidence.

At this juncture, it is pertinent to note that fact under Section 3 of Indian Evidence Act includes not only physical fact but even mental fact.[210] Psychological fact [211] as defined by Bentham belongs to the category which only exist in the mind of the individual. For instance, sensations and recollections of which an individual is conscious, the intellectual assent of a person to any proposition, desires or passions by which a person may be agitated, intention of a person in doing a particular act.[212] A man's mental condition may be indicated either through assertions or conduct. The former is considered as direct evidence and the latter as circumstantial. All these are equally admissible for the purpose of proving or disproving the matter to which they relate. All these reveal that evidence from the mind of the persons is relevant and is admissible in evidence in certain circumstances.

208. In *Ayub* v. *State of U.P.*,( 2002) 3 S.C.C. 510, the Supreme Court ruled that confession made under s. 15 of TADA ,1987, if strictly according to the procedure laid down in the statute for recording confession is admissible in evidence. See, s. 164 of The Code of Criminal Procedure, 1973.The confession made to judicial magistrate is admissible in evidence.

209. Indian Evidence Act, s. 8 deals with conduct of the accused when relevant.

210 . Section 3 defines Fact. Accordingly Fact means and includes 1. Anything, state of things or relation of things capable of being perceived by the senses; 2. Any mental condition of which a person is conscious.

211. For detailed discussion see M.C. Sarkar and S.C. Sarkar, *Sarkar Law of Evidence*, *Vol.1*, (18th edn.,2014), Lexis Nexis, Haryana, India, pp.48-49. Bentham has classified facts into physical fact and psychological fact.

212. Earlier it was considered that mental facts are incapable of direct proof of the testimony of the witnesses and that their existence could only be ascertained by the confession of the party whose mind is their seat or by presumptive inference from physical facts. But now it is recognized that "state of a person's mind is as much the subject of evidence as the state of his digestion." *Sabapathi* v. *Huntley*, A.I.R. 1938 P.C 91. For discussion, see *ibid*.

## 7.4 Conclusion

Exclusion of evidence itself is an important remedy for the violation of international human rights norms. Exclusionary rules apply to all evidence obtained as a result of coercion not amounting to torture or other ill treatment and also to those evidence obtained by improper methods or in breach of human rights. It also applies where the admission of evidence impedes with fact finding process.

The study found that the evidence based on non-invasive Forensic Psychological Tests do not violate rule against oath helping, past inconsistent statement rule, self-serving statement rule, common knowledge rule etc. Regarding violation of ultimate issue rule, it may be stated that the evidence based on Forensic Psychological Tests is like any other opinion evidence. The jury may or may not accept it. Moreover, when any scientific expert opinion is admitted, the jury actually admits evidence which directly goes to the issue deciding the guilt or innocence of the subject. Same argument applies with respect to Forensic Psychological Tests also.

The character evidence rule and specific incident rules are also not absolute and are subjected to exceptions. In the case of all non-invasive Forensic Psychological Tests, the object of the evidence is not to show that the accused is not the sort of person who would commit the offence. It is introduced with the purpose of giving evidence to the extent that the physiological reactions of the accused are consistent with that of a person who tells the truth, or that he has experiential knowledge about relevant facts relating to crime etc. There are also some scholarly opinions which state that strict application of exclusionary rules including character evidence rule should not be applied with respect to psychological and psychiatric evidence. Thus it may be stated that noninvasive Forensic Psychological Tests do not *per se* violate exclusionary rules based on the grounds impeding with fact finding process. Narco Analysis Test, being an invasive procedure must be used only as an investigative aid.

It is also important that Indian Evidence Act establishes evidence in the form of inclusionary rather than exclusionary rules. The admissibility of evidence is determined solely by relevancy and reliability rather than considerations of exceptions to the common law exclusionary rules or other statutory requirements. The current trend is to reject or limit exclusionary rule. In almost all jurisdictions the trend is to abrogate the rule. Exclusionary rules were developed against the background of a criminal justice system which was radically different from what we have in this modern era. In those days accused had no right to fair trial. However in the modernized era, criminal justice administration is governed by human rights principles and police, prosecution and defense lawyering has become scientific and professionalized and hence *per se* exclusion of Forensic Psychological evidence which may be relevant to the determination of guilt or innocence may do more injustice than rendering justice.

Regarding the second category of evidence, it is not possible to provide an exhaustive list of what constitutes improperly obtained evidence or determine *apriori* the manner in which the courts would exercise discretion in this regard. The analysis of common law position reveals that though exclusionary power of the courts are constitutionally or statutorily provided, courts engages in balancing exercise and admits such evidence after considering various factors. When Forensic Psychological Tests are analysed in this contest, it is found that results of the tests are generally excluded as being violative of right against torture and other ill treatments and violation of mental privacy by the courts in USA, Canada, New Zealand and India.

At this juncture, it is pertinent to note that as per Indian law, Forensic Psychological Tests are not *per se* banned. Analysis of the tests in the light of Convention Against Torture revealed that the investigative use of the tests are not *per se* violative of right against torture or other ill treatment. It is also found that the concept of mental privacy is an aspect of procedural protection and hence do not have substantive protection. Therefore it could also be subjected to restrictions on the grounds of public interest. Thus the admissibility of the results obtained from Forensic Psychological Tests, if safeguards are strictly followed, must be decided on case by case basis.

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# Chapter - VIII

# INVESTIGATIVE AND EVIDENTIARY USE OF FORENSIC PSYCHOLOGICAL TESTS IN INDIA: NEED FOR A COMPREHENSIVE LEGISLATION

This chapter analyses, how far legislation and judicial precedents in India are adequate to safeguard the human rights of the accused which may be affected as a result of assimilation of Forensic Psychological Tests in criminal justice system. A critical analysis of *Selvi*[1] decision in the light of various jurisprudential norms is made in this chapter. The chapter peruses the statutory basis which authorises the investigating agencies to conduct Forensic Psychological Tests. The chapter also analyses whether real and valid consent is a valid ground for the administration of the tests. An analysis of empirical study is also made in this chapter.

## 8.1 Law Governing Forensic Psychological Tests in India

The tests are conducted in India as per the procedure laid down in Forensic Science Laboratory Procedure Manuals released in 2007 and the guidelines laid down in *Selvi* decision. The tests are mainly governed by the provisions of the Indian Constitution,[2] The Criminal Procedure Code[3], The Indian Evidence Act [4] and The Identification of Prisoners Act, 1920. However, it is doubtful, whether the tests could be conducted as per the provisions of Chapter XII of The Code of Criminal Procedure, especially in the light of *Ritesh Sinha* case,[5] which was concerned with voice samples. One of the main issues in that case was, whether in the absence of any provision in Criminal Procedure Code, a magistrate can authorise investigating agency to record the voice sample of the person. As there was difference of opinion on this issue between two judges in the division bench, the matter was referred to a larger bench. This issue is equally applicable in the case of Forensic Psychological Tests especially Layered Voice Analysis Test, wherein voice sample is involved.

1 . *Selvi* v. *State of Karnataka*, (2010) 7 S.C.C. 263.
2. Part III, Part IV and Part IV A.
3. Chapter XII dealing with provisions of investigation of crime, Ss. 39, 179, 293,313, Proviso (b) to s. 315 etc.
4. Ss.3,9, 24-30,45 to 47,165etc.
5. *Ritesh Sinha* v. *State of U.P.*, (2013) 2 S.C.C. 357.

Hence there exists confusion as to the legal authority/ source for the investigative use of the tests. Moreover, *Selvi* guidelines[6] is confined only to Polygraph, Brain Electrical Oscillation Signature Profiling Test and Narco Analysis Test and do not cover other tests. Hence, there exists no legislation regulating these tests.

Therefore presently only *Selvi* guidelines regulate the working of these tests. Even with respect to *Selvi* decision there are several criticisms. Therefore an attempt is made to analyse this decision in the light of jurisprudential norms.

## 8.2 *Selv*i: An Analysis

Several scholars and lawyers have criticised this landmark judgement. The criticisms are made not only from the perspective of rights of the accused, but from the perspective of criminal justice system as such. All these criticisms are analysed in this section.

### *8.2.1 Facts of the Case*

An allegation was made against the accused Selvi' Murugesan, then sitting MLA in Karnataka, of the murder of her son in law, Shiva Kumar. The marriage of her daughter with her son in law occurred against the wishes of the family members. Selvi, her husband and one of their family friends were suspected of kidnapping and murder of Shiva Kumar. The prosecution case being solely based on circumstantial evidence, they sought courts permission to conduct tests like Polygraph and Brain Electrical Oscillation Signature Profiling[7] and Narco Analysis Tests on the three suspects. The magistrate directed all the three suspects to undergo Narco Analysis Test, as Polygraph Test turned against them. This decision was challenged in Karnataka High court, which went against them. Hence they appealed to the Supreme Court. While deciding *Selvi'*s appeal along with 10 other appeals the apex court considered the issue whether involuntary administration of Polygraph, BEOS,[8] and Narco Analysis Test violate constitutional provisions.

6. Discussed in detail in later part of this chapter.
7. Herein after referred as BEOS Test.
8. The judgment has used the BEAP (Brain Electrical Activation Profile Test) whereas the inventor of the test states that the name of the test is BEOS. Brain Electrical Oscillation Signature Profiling Test.

### 8.2.2 *Question of Law*

The main questions of Law[9] considered by the court was

1. Whether involuntary administration of the tests like Polygraph violates the "right against self-incrimination" enumerated in Article 20(3) of the Constitution?

   1. A. Whether the investigative use of the tests like Polygraph creates the likelihood of incrimination for the subject.

      B. Whether the results derived from the tests like Polygraph amount to testimonial compulsion thereby attracting the bar of Article 20(3).

   2. Whether the involuntary administration of the tests like Polygraph is a reasonable restriction on "personal liberty" under Article 21 of the Constitution?

### 8.2.3 *Decision of the Case*

The court held that,

(i) The compulsory administration of Polygraph, BEOS and Narco Analysis Tests would violate right against self-incrimination. The results of the impugned tests bear a testimonial character and they cannot be categorized as material evidence.

(ii) Forcing the individual to undergo the test would result in violation of substantive due process which is required in restraining the personal liberty. The violation would occur irrespective of whether these techniques are forcibly administered during the course of the investigation or for any other purpose, as these test results could also expose a person to non penal consequences.

(iii) The impugned tests could not be read into the statutory provisions enabling medical examination during investigation in criminal cases under Explanation to Section 53, 53 A and 54 of the Code of Criminal Procedure, 1973. Such an expansive interpretation is not feasible in the light of the principle of statutory interpretation "*ejusdem generis* " rule

9. *Supra* n.1 at pp.282-83.

and also in the light of the rules governing interpretation of statues in relation to scientific developments.

(iv) The compulsory administrations of the test are unjustified intrusion into the mental privacy of the subject. It would also amount to cruel, inhuman and degrading treatment and would also violate right to fair trial and compelling public interest is not a justification for the violation of constitutional rights like right against self-incrimination.

Thus, the court concluded that, no individual could be forcibly subjected to the impugned tests for the purpose of investigation of criminal cases or otherwise. However room had been left for the voluntary administration of the test for the purpose of criminal justice, if certain safeguards are in place. Even then, the test results by themselves could not be admitted in evidence as the subject does not exercise conscious control over the responses during the administration of the test. However the court held that, if any material or information is subsequently discovered with the help of the evidence obtained as a result of voluntarily administered test, it could be admitted in evidence under Section 27of Indian Evidence Act. Thus, the court prohibited the direct use of the test results. However the transactional and derivative uses of the tests are permitted. The court also laid down certain guidelines[10] to be followed when Polygraph, BEOS and Narco Analysis Tests are conducted.

10 . The guidelines are as follows:-

1. No lie detector test should be administered except on the basis of consent of the accused. An option should be given to the accused as to whether he wishes to avail the test.
2. If the accused volunteers a lie detector test, he should be given access to lawyer. The physical, emotional and legal implication of the test should be explained to him by the police and his lawyer.
3. The consent should be recorded before the judicial magistrate.
4. During the hearing before the magistrate, the person alleged to have agreed for the test should be duly represented by a lawyer.
5. At the hearing, the person in question should be told in clear terms that the statement that is made shall not be confessional statement to the magistrate but will only have a status of a statement made to the police.
6. The magistrate shall consider all factors relating to the detention including the length of detention and the nature of interrogation.
7. The actual recording of the lie detector test shall be done by an independent agency (such as a hospital) and shall be conducted in the presence of a lawyer.
8. A full medical and factual narration received must be taken on record.

### *8.2.4 Critical Analysis*

Though the decision is appreciated as land mark one, in several aspects it has left room for various questions. It is stated that the decision is a reminder that police reforms must be taken up seriously.[11] The court in *Selvi* had held that involuntary administration of the tests is violative of human rights. However, the court has left room for conducting the test, when it stated that "for the purpose of criminal justice administration we do leave room for conducting the test if it is done voluntarily and provided certain safeguards are in place."[12] Similarly, though court had refused to admit the evidence based on even voluntarily conducted test, it held that if any materials or information is obtained based on the statements made under the test, it could be admitted in evidence under Section 27 of Indian Evidence Act. Thus, the decision permitted the investigative authorities to use the test results in evidence whereas evidence favourable to the accused was not allowed to be admitted in evidence. This may be criticised as a serious disparity that may operate as prejudicial to the interest of the accused.

Another major drawback is that, the court did not clarify the role of medical professionals in criminal investigation. This factor is very much important especially because many high courts had upheld the tests based on the reason of presence of medical professionals.[13]

Most of the articles which have analyzed this decision were actually unanimous with respect to issue of consent. It is criticised that, it may leave room for further issues and the investigating officers may try to make undue influence to get the consent of the subject.[14] It is criticised that voluntariness is difficult in practice.[15]

11 Nawaz Kotwal (Ed.), *Police Complaints Authority: Reforms Resisted*, The Commonwealth Human Rights Initiative (CHRI), New Delhi, India, (2011), pp.41-44 available at http://humanrightsinitiative.org/old/publications/police/PoliceComplaintsAuthorities_ReformResisted.pdf (accessed on 10/09/2017).

12 *supra* n.1 at p.383.

13. Jinee Lokaneeta, "Truth Telling: Techniques in a Regime of Terror," (2011), pp.1-7 at p.4, available at http://www.yorku.ca/drache/Canada%20Watch/canada-watch/pdf /fall2011 /Lokaneeta.pdf (accessed on 10/09/2017).

14. "Narco Analysis: Supreme Court Sets out the Truth," The Milli Gazette, May 22, 2013, available at http://www.milligazette.com/news/7290-narco-analysis-supreme-court-sets-out-the-truth (accessed on 01/07/2014).

Even in *Selvi,* court had opined that in custodial circumstances the subject's capacity to decision making or judgment is really impaired. Apart from the above, a question is also raised, whether a wrong committed against constitutional principles would become right when done with Consent.[16] It was even argued that as constitutional validity of voluntary administration of the tests was not under the consideration of court, that part of the decision permitting the tests with consent should not be taken as part of the ratio of the case.[17]

It is also criticized that the Doctrine of Waiver is not applicable in India. The Supreme Court has held that administration of the tests without consent would violate right against cruel, inhuman and degrading treatment. At the same time, the court permitted the tests with consent. It is criticized that the judgment has recognized some exceptions to fruits of poisonous tree doctrine.[18] The decision is also criticized in several scholarly articles in jurisprudential perspective also.[19] It is stated that the court has failed to make distinction between constitutional and statutory rights.[20]

15. Arun Ferreira, "A Critical Appraisal of Prevention of Torture Bill, 2010," Vol. XlV (21), Economic and political Weekly, May 22, 2010, pp.10-13.
16. Justice A. R. Lakshmanan, "Welcome Verdict, but Questionable Rider, The Hindu, July 9, 2010, available at http://www.thehindu.com/opinion/lead/Welcome-verdict-but-questionable-rider/article16189466.ece (accessed on 10/09/2017).
17. Supallab Chakraborthy, "Critical Analysis of *Selvi* v. *State of Karnataka*," Acadmike, February 3, 2015, available at https://www.lawctopus.com/academike/critical-analysis-selvi-v-state-karnataka/ (accessed on 10/09/2017).
18. Justice A R Lakshmanan, "The Supreme Court Ruling on the use of Narco Analysis is an Incomplete Exercise," 2010, available at www.lawyersupdate.co.in/LU/1/257.asp (accessed on 04/06/2013). The object of Fruits of Poisonous Tree Doctrine is propounded by US judiciary to prevent police misconduct, specifically as it relates to search and seizure. However some exceptions are also recognised. For instance, in the case of inevitable discovery doctrine, i.e., if the same evidence would have been inevitably discovered or in the case of attenuation, i.e. the link between illegal search and legally admissible evidence is thin etc. For detailed discussion on Fruits of poisonous tree doctrine and exceptions, see Robert M. Pitler, "The Fruit of the Poisonous Tree Revisited and Shepardized," Vol. 56, California Law Review, May 1968, pp. 579-651.
19. Dr. V R Jayadevan, "*Selvi* v. *State of Karnataka*: An Extravagant Extension of Right Against Self Incrimination," Journal of Indian Legal Thought, 2010, pp.316-325.
20. Ashish Goel,, "Indian Supreme Court in *Selvi* v. *State of Karnataka*: Is a Confusing Judiciary Worse Than a Confusing Legislation?," Vol. 44( 4), Journal of Law and Politics in Africa, Asia and Latin America, January 30, 2011, pp.1-15 at p.4, available at https:// papers.ssrn.com/sol3/papers.cfm?abstract_id=2063920 (accessed on 14/12/2017). In this article, regarding right against self-incrimination the author stated that Right against self-incrimination as a Fundamental Right is available only to a person against whom formal accusation as to the commission of the offence has been made. But statutory right against self-

There are also criticisms that the court has erred in interpreting the privilege against self-incrimination and the decision is criticized as extravagant extension of right against self-incrimination.[21] In all these tests, the accused is not expected to make statements which may amount to confession or admission. In fact, they only help to get clues as to the matters under investigation or verify the conclusions. It is also stated that the court has failed to distinguish between testimonial act under compulsion and voluntary testimony by compelling a person to scientific tests.[22] Only the former one is prohibited and the latter is not, except in the case of use of force.[23]

The jurists have also criticized the dictum of *Selvi* which included the results of Polygraph and BEOS Test within the ambit of Article 20(3).[24] Though the actual process of undergoing the tests are not similar to that of making oral statement, the consequences were found as same by the Supreme Court.[25] This is severely criticized by scholars.[26] They state that modern scientific developments facilitate verbal testimony by one in a non-cognitive state and such testimony can neither be voluntary or involuntary.[27] Hence classification of evidence only as testimony and material evidence is not suitable for testing the validity under Article 20(3) in this

incrimination is derived from Section 161 (2) of The Code of Criminal Procedure, is available to witness and suspects also.

21. *ibid.* See also, *supra* n. 19.
22. *Supra* n. 19 at p.321.
23. *ibid.* Dr V.R Jayadevan in his article considers the issue as to validity of the tests like Polygraph, in the light of Art. 20(3) and stated that the scope of the right is limited when compared to that in English law. He states that even if the statements elicited through these tests are considered as testimonial acts, it is doubtful whether it is prohibited under right against self-incrimination rule. Prohibition under Art. 20(3) must satisfy two conditions. 1. Statement must be made under compulsion 2. It must be made against the person making them. The object of the right is to prohibit eliciting of evidence from an accused with coercion, duress, compulsion etc. which may acquire new forms and reach new heights. The right does not extend to making of voluntary statements even if it is self-incriminatory. So "unreasonable apprehensions may not be allowed as a hiding ground for the accused, for it is a physical objective act, not the state of mind of the person making the statement. A voluntary testimony given by the accused knowing the consequences is not forbidden even if he is in custody. Exclusion of such evidence is a matter of policy. The right has actually been narrowed down "to requiring the accused to produce evidence himself by excluding lawful search and seizure from its ambit". Similarly in certain cases acceptance of evidence taken from the accused with necessary force can be placed outside the ambit of this right. Thus the scope of the right is not wide.
24 . *ibid.*
25. *ibid.*
26. *ibid.* The author states that the court has strained a lot in drawing a similarity.
27. *ibid.*

modern era, wherein both interest of investigating agencies and rights of accused are to be accommodated.[28]

The interpretation of 'such other tests' in medical examination and the non application of *ejusdem generis* rule are also criticized by scholars.[29] In fact, this issue was considered in *Ritesh Sinha's* case also. Similarly interpretation of the concept of right to privacy, into physical and mental aspects, is also criticized as not supported by constitutional jurisprudence.[30] The court had observed that, the choice between right to speak and right to remain silent is an aspect of personal autonomy and there is no scope for other persons to interfere with.[31] However it is important to note that, right to privacy is not an absolute right and is subject to reasonable restrictions like compelling state interest for detection and investigation of serious crimes. It is criticized that the holding of choice to keep silence as part of right to privacy than as part of Article 20(3) is also a wrong precedent.[32] It also implies that right to privacy is available to the accused only if there is self-incrimination.[33] This means that if there is no issue of self-incrimination, the tests could be conducted. Hence there is another criticism that court has failed to explain the scope and ambit of right to privacy.[34]

The reading of Article 20(3) as component of personal liberty under Article 21 based on theory of interrelationship of rights so as to recognize the importance of personal autonomy is also criticized on jurisprudential grounds.[35] It is criticized that a right cannot be enumerated and unenumerated at the same time.[36]

28. *id.* at p.319.This aspect is already considered in detail in chapter V.
29. *id.* at p.324.
30. *ibid.*
31. *supra* n. 1.
32. Anusree.A, "Forensic Psychology Tests in Criminal Investigation: Need for a Comprehensive Legislation," Vol.1 (3), International Journal for Research in Law, April 2016, pp.174-193 at p.188.
33. Arvindeka Chaudhary, "Admissibility of Scientific Evidence Under Indian Evidence Act 1872," (Ph.D. Thesis, Department of Law, Gurunanak Dev University, 2014), p.126, available at http://shodhganga.inflibnet.ac.in/handle/10603/102549 (accessed on 12/09/2017).
34. *id.* at p.127.
35. *supra* n. 19 at pp. 324-325.
36. *ibid.* It was stated that right to silence under Art. 20(3) as an enumerated right and as an un enumerated right under Art. 21 simultaneously cannot be operative. See also, *supra* n. 32.

It is also criticized [37] that, the court had failed to take into consideration laid down in significant cases like *D K Basu* v. *State of West Bengal*,[38] *Inder Singh* v. *State of Punjab,*[39] *State of MP* v. *Shyam Sunder Trivedi and Ors,*[40] *Nilabathi Behra* v. *State of Orissa*[41] etc., and so on wherein courts have expressed severe anguish regarding inhuman treatment in police custody and had demanded scientific investigation. It is also criticized that the judgment has not taken into consideration the rights of the victim and interest of the society at large.[42]

It is also stated that though accused has right against self-incrimination, silence and right against adverse inference in case of silence etc., but it does not mean that investigating officer must stop making investigation as to the alleged commission of crime. The object of providing these rights is actually to prevent the authorities from using torture to extract information. Hence when scientific tests in the form of Forensic Psychological Tests are available which would help in the investigation, it would be unwise to use it.[43] Moreover if these tests are not adopted it may result in letting out the accused not because of lack of any evidence but because of unfair and imprudent investigation.[44] Similarly, accused also would be deprived of his right to exonerate from liability, if the tests are not permitted. He would also be deprived of the benefit of favourable evidence, if beneficial test results are not admitted in evidence. It is also pertinent to note that the object of fair trial is to search for truth. Court should not just bother about technicalities. And the trial must be conducted under such rules as to protect the innocent and punish the guilty.[45] There is also criticism that the judgment by not permitting to conduct these tests have neglected right to speedy investigation and trial.[46]

37. *supra* n.33 at pp.119-120.
38. (1997) 1 S.C.C. 416.
39. (1995)3 S.C.C. 702.
40. (1995) 4 S.C.C. 262.
41. A.I.R. 1993 S.C.1960.
42. *supra* n. 33 at p.134.
43. *ibid*.
44. *Gurbax Singh Bains* v. *State of Punjab*, 2012 (4) R.C.R.(Criminal) 743.( Pun. & Har.).
45. *Zahira Habibbulla H. Sheikh* v. *State of Gujarat and Ors*, (2004) 4 S.C.C 158.
46. *supra* n.33 at p.134.

Regarding the issue of torture also, the judgment is criticized. There exists no legislation in the country which defines the term torture. Hence it is criticized that the exact scope and definition of torture is also not clear. Moreover India has also not ratified Torture Convention. But court stated that the international conventions have persuasive value and the court stated that, if the tests are conducted without consent, then it would amount to cruel, inhuman and degrading treatment. It is criticized that, if such an interpretation is taken then sharing of information with police would amount to torture.[47] In that case getting information under Section 161(2) of The Code of Criminal Procedure, would amount to torture for the simple reason that a person has to answer truthfully under this Section. Hence it is criticized that such a wider interpretation should not be given in which case it would amount to injustice.[48]

Apart from all these criticisms, the application of *Selvi* guidelines with respect to Polygraph to entirely different tests like Narco Analysis and Brain Imaging Tests is also considered as improper.[49] It is also criticized that considering evidence as a testimonial act merely because it is verbally given is outdated.[50] Because in this scientific era wherein importance of scientific tests based on psychological knowledge is escalating, narrow interpretation for the concept of testimonial evidence is obsolete. This would have prejudicial impact not only on investigating efforts, but on rights of innocent suspects also.[51] It is also important to note that psychology itself is a new branch of study and forensic psychology which was considered as branch of psychology till early 20th century, emerged as a speciality only in 2001. Moreover new techniques are being developed in this area. At this juncture, this decision may have a detrimental impact on the research studies and the development of this branch.

All these points to the aspect that the decision has not satisfied community expectations and that there is need for comprehensive legislation in India governing these tests. Now it may be analysed given the lack of legislation, whether the tests

47. *id.* at p.129.
48. *ibid.*
49. *supra* n. 19.
50. *ibid.*
51. Most of the investigating officers have opined that the tests are useful for exonerating the innocent.

could be conducted under investigative power of police under Chapter XII of The Code of Criminal Procedure.

## 8.3 Whether Investigative Power Includes Power to Administer Forensic Psychological Tests?

When we analyse Indian position, it could be seen that the police power to investigate into a cognizable offence is unfettered. Investigation includes all procedures from receiving information about the commission of offence to the filing of final report under Section 173(2) of The Code of Criminal Procedure before the court.[52] Thus, the police is vested with series of investigative powers like powers to arrest and detention, power to enter, search and seizure, power to interrogate etc., which may even interfere with the legal rights of the citizens.

If the police officer suspects the commission of cognizable offence he can proceed with the investigation.[53] He has the discretion not to proceed with the investigation if reasonable grounds exist for the same. He also has the discretion to prosecute or not to prosecute. This discretion commences from inception of the criminal case and ends with the filing of final report. In exercise of his discretion in the investigation of crime he is answerable only to law.[54] The judiciary will interfere only when the police do not exercise its discretion within the bounds of law [55] or if

52. In *H.N. Rishbud* v. *State of Delhi*, A.I.R.1995 S.C.196, 201, it was held that the investigation of an offence consists of:
    1. Proceeding to the place of offence;
    2. Ascertainment of facts and circumstances of the case;
    3. Discovery and arrest of the suspected offender;
    4. Collection of evidence relating to the commission of offence which must consist of –
    (a) The examination of various persons (including the accused), and the reduction of their statements into writing, if the investigating officer thinks fit.
    (b) The search of places or seizure of things considered necessary for the investigation or trial.
    5. Formation of the opinion as to whether on the materials collected , there is a case to place the accused before a magistrate for the trial and if so, taking the necessary steps for the same by filing a charge sheet u/s. 173 of The Code of Criminal Procedure.

53 .Ss. 156, 157 and 159 of The Code of Criminal Procedure and s.23 Police Act, 1861.

54 . *R.* v. *Metropolitan Police Commissioner*, [1968] 1 All E.R 763. In *State of Haryana* v. *Bhajan Lal*, A.I.R. 1992 S.C. 604, it was held that though under the scheme of Code of Criminal Procedure, magistrate is kept in the picture in all stages of investigation, he is not authorised to interfere in the actual investigation or direct the police as to how to conduct the investigation. Interference with investigation even under inherent jurisdiction is considered as inadvisable. See also, *Emperor* v. *Kwaja Nazir Ahmad* , (1945) 47 BOM L.R. 245.

55. In *State* v. *Heera*, A.I.R. 1968 Raj.233, regarding police powers, the court observed that Section 3 of the Police Act, 1861, provides that except as authorized under the provisions of that Act, no person, officer or court shall be empowered by the State Government to supersede or control

the fundamental rights of the suspects are violated by unlawful exercise of discretionary power by the police. Even in such a situation the court has no authority to direct the police about the *modus operandi* to conduct investigation. Thus from an analysis of The Code of Criminal Procedure, Police Act, 1861 and the judicial decisions, it may be stated that police has the sole prerogative to investigate offences. Hence it may be stated that the mode of investigation, like the persons to be interrogated, whether to conduct search or not, the manner in which the evidence is to be collected, like, whether to send the subjects to Forensic Psychological Tests or not, or whether to send the samples for forensic analysis etc., come within the lawful exercise of discretionary powers of the police. He also has every obligation to see that guilty do not go unpunished, at the same time innocent shall not be prosecuted. Hence for this purpose, if the investigating officer sends a subject to Forensic Psychological Tests, it is very much within the purview of his investigatory powers.

The empirical study conducted by the researcher, revealed that only when no other direct evidences are available and when investigating officer feels that subjecting the persons to these tests would give a lead in the investigation, as a last resort the subjects are send for these tests. This reveals that the discretion is exercised very cautiously. Not only that the tests are conducted only upon the order of jurisdictional magistrate. Thus subjecting persons to these tests may be considered as routine investigative process under Chapter XII of The Criminal Procedure Code. The issue whether Forensic Psychological Tests like Narco Analysis could be conducted under routine investigative process was considered by various High Courts prior to *Selvi* decision. The courts[56] have held that under various provisions of Criminal Procedure Code like Sections 156-159, collection of evidence is permitted under law. Hence conducting of the tests like Narco Analysis on the accused is to be considered as the process of collection of evidence by the investigating agencies.

police functionary.... However court may interfere if police do not act within the bounds of law. See, *Zahira Habibulla H. Sheik* v. *State of Gujarat*, (2004) 4 S.C.C. 158. In this case due to defective investigation the court interfered. *Vineet Narain* v. *Union of India*, A.I.R. 1998 S.C. 889. In this case due to continuing inertia of the investigating agency, the court directed the Central Bureau of Investigation to conduct investigation.

56. *Santokben Jadeja* v. *State of Gujarat*, 2008 (2) K.L.T 398. One of the contentions of the petitioner was that there are no statutory powers for conducting the tests.

In *Sister Sherly v. State of Kerala,* [57] Kerala High Court elaborately considered this issue. The court held that under Section 53 of the Code of Criminal Procedure, conducting of tests like Narco Analysis on the accused is legally permissible. Section 160 empowers the police to require attendance of any person acquainted with facts and circumstances of the case being investigated by him even outside the place of residence. This would enable the police officer to require the witness to appear at different places where investigation is required to be carried out. Therefore if police require any person to appear at Forensic Science Laboratories,' for the sake of conducting of tests like Narco Analysis, it will not be violative of fundamental rights and is permissible. Thus it may be stated that as per the dictums of various High Courts, administering the tests like Narco Analysis may be considered as the process of collection of evidence and hence would fall within the scope of investigative powers under The Criminal Procedure Code.

At this juncture it is very much relevant to discuss the decision of *Ritesh Sinha* v. *State of UP*.[58] In that case, investigating officers required the voice samples of the appellant for investigation purpose. They filed an application for the same before the Chief Judicial Magistrate, which was decided in favour of investigating officers. The magistrate issued summons to the appellant to appear before the investigating officer and record his sample of voice. The appellants' application under Section 482 of The Criminal Procedure Code was also rejected by the High court. Hence special leave appeal was filed before the Supreme Court. One of the important issues considered by the Supreme Court was that, whether in the absence of any provision in The Criminal Procedure Code, a magistrate can authorize the investigating agency to record his voice sample during the course of investigation into an offence. In that case, there was difference of opinion between judges in the division bench and hence the matter was referred to higher bench.

The court considered the definition of investigation under The Criminal Procedure Code, [59] which included all the proceedings under the Code for the

57 . CRL.M.C.No.1218/2009 and W.P.(C)8273 Of 2009, Kerala High Court, available at https://indiankanoon.org/doc/1421755/ (accessed on 23/10/2017).
58. (2013) 2 S.C.C.357.
59. S.2(h).

collection of evidence conducted by the police officer or any other person other than magistrate who is authorized by the magistrate in this behalf. The collection of voice sample of an accused is a step in the investigation. The counsel for the state in *Ritesh*, had argued that though various steps which the police take during investigation are not specifically provided in the Code, they fall within the wider definition of investigation. Thus investigation had been held to include those measures that had not been enumerated in the statutory provisions.[60] Hence the counsel for the state contented that no legal provision need to be located under which voice sample is to be taken. Same argument may be applied with respect to administering Forensic Psychological Tests for the purpose of collection of evidence.

However Justice Desai in *Ritesh* did not accept this contention. The Judge stated that the police actions which are likely to affect bodily integrity or personal dignity must have legal sanction.[61] This is very much required to prevent the abuse of power by the police. A Perusal of apex court decisions also reveals that subordinate criminal courts do not have inherent powers.[62] However in *Sikiri Vasu*,[63] it was held that magistrate has implied and incidental powers. *Sikiri Vasu* was dealing with the power of magistrate under section 156(3) of the Criminal Procedure Code. It was held that the power under Section 156(3) includes all such powers as are necessary for ensuring proper investigation of the case. It was also held that when power is given to an authority to do something, it include all such incidental and implied powers to ensure the proper doing of that thing. It was further stated that where an Act confers jurisdiction, it impliedly confers power of doing all such acts or employ such means as are essentially necessary for the execution of it. Hence taking cue from these judicial decisions, Desai J stated that subordinate criminal courts, though do not have inherent powers, can exercise such incidental powers as are necessary to ensure proper investigation.[64]

In this background, the judge considered whether the power of the magistrate to issue directions to the police officer could be read into any provisions of any law

60. *Mahipal Maderna and Anr.* v. *State of Rajasthan,* 1971 Cri. L.J. 1405 (Raj.).
61 . *State of West Bengal* v. *Swapan Guha,* A.I.R.1982 S.C. 949.
62. *Bindeshwari Prasad Singh* v. *Kali Singh*, A.I.R. 1977 S.C. 2432.
63. *Sikiri Vasu* v. *State of UP,* (2008) 2 S.C.C. 409.
64. Malimath Committee had recommended for conferment of inherent powers to subordinate criminal courts. See, Dr. Justice V.S. Malimath, *Committee on Reforms of Criminal Justice Systems*, Government of India, Ministry of Home affairs, 2003, p.31.

or the Code. The Identification of Prisoners Act, 1920, authorizes police to use all means necessary to secure measurements etc., if the person puts up resistance.[65] The Judge also considered some similar cases. For instance, in *Telgi,*[66] wherein the issue of voice sample was involved, Bombay High Court held that requiring the accused to lend his voice sample will not amount to testimonial compulsion. The High court held that measuring frequency or intensity of the sound waves would fall within the ambit of the term measurement under The Identification of Prisoners Act. The court also held that Section 5 and 6 of the Act also enable the courts to pass such orders.[67] Justice Desai accepted the view taken in *Telgi* decision and that voice is the physical characteristic of a person. Justice Desai also discussed *R.M Malkani*,[68] which took the view that tape recorded conversation is admissible provided the conversation is relevant to the matters in issue. Justice Desai stated that if tape recorded conversation is admissible in evidence; there must be a provision under which the police can get it identified. It is necessary for that purpose the police must get the voice sample of the accused. If there is no legal authority for that, then admissibility of tape recorded conversation will be in jeopardy. Hence it may be stated that police has legal authority to take voice samples. Same arguments may be raised with respect to Layered Voice Analysis Test wherein voice samples are involved.

Justice Desai also discussed the meaning of the term measurement. The dictionary meaning of the term measurement is the act of process of measuring. The voice sample is analyzed or measured on the basis of time, frequency and intensity of the sound waves. Though this is stated with respect to spectrographic voice identification, same is the case with respect to LVA Test also. Hence Justice Deasi concluded that measuring frequency or intensity of the speech can be included in the definition of measurement under Section 2(a) of The Identification of Prisoners

65. Section 6. Section 7 states that all the measurements and photographs taken of a person who has not been convicted shall be destroyed unless the court directs otherwise, if that person is acquitted or discharged.
66. *Central Bureau of Investigation, New Delhi* v. *Abdul Karim Ladsab Telgi and Others*, 2005 Cri.L.J. 2868 ( Bom.).
67. In *Rakesh Bisht* v. *CBI*, (2007) 1 JCC 482. Delhi High Court disagreed with the view taken by court in *Telgi*.
68. *R.M. Malkani* v. *State of Maharashtra,* A.I.R. 1973 S.C. 157.

Act.[69] Therefore, Justice Desai held that a magistrate acting under Section 5 of The Identification of Prisoners Act can give direction to any person to give his voice samples for the purpose of any investigation or proceedings under the Code.

The Court also considered Explanation (a) to Section 53 of Criminal procedure Code, which defines medical examination. The definition is an inclusive one. The court examined, whether by applying *ejusdem generis*, voice sample test could be included within the scope of the term examination. *Ejusdem generis* means that, when the general words follow specific words in a statutory provision, it should be construed in the light of commonality between those specific words. The Court in *Selvi*[70] had acknowledged that the substances mentioned in Explanation (a) to Section 53 are examples of physical evidence. Hence the words "such other tests" should be construed to include the examination of physical evidence and not that of testimonial acts. Justice Desai stated that as voice emanates from the human body, though it cannot be touched or seen like a bodily substance, it being a physical examination could be treated as part of human body. Hence, Justice Desai held that voice sample could be treated as physical evidence involving no transmission of personal knowledge and therefore would come within the meaning of 'such other tests' under explanation (a) of Section 53 of the Code of Criminal Procedure. [71]

The Judge also stated that Section 53 speaks about the examination by registered medical practitioner of the person of the accused but does not use the words medical examination. Thus, in justice Desai's view taking of voice samples could found place in the legal provisions of Identification of Prisoners Act and Explanation (a) of Section 53 of the Criminal Procedure Code. In *Sant ram @*

69. 87th Law Commission Report also mentioned that voice prints are like finger prints. The Commission recommended amending The Identification of Prisoners Act to include voice samples. P.V. Dixit, *87th Report on Identification of Prisoners Act, 1920*, Law Commission of India, 1980, p.23. Justice Desai also took the same view. So scientific tests based on voice samples would come within the ambit of Identifications of Prisoners Act.
70. *supra* n. 1 at p.351.
71. Court also referred to a decision by Supreme Court of Appeal of South Africa in *Levack,, Hamilton Ceasar and Ors.* v. *Regional Magistrate , Wynberg and Anr* [2003] 1 All SA 22 (SCA) (28th November 2002)wherein the same issue was involved. In that case court by referring to the Oxford dictionary meaning of the term voice, stated that voice is a sound formed in the larynx and uttered by the mouth and emanates from and is formed by the body.

*Sadhu Ram* v. *State,*[72] the blood sample was drawn by an expert who is also to carry out the analysis. The court held that even if that expert is not a medical practitioner, the same is not violation of Explanation (a) to Section 53 of The Criminal Procedure Code. This means that, a Forensic Psychologist may come within the ambit of medical practitioner.

It may also be stated that all these views held by Justice Desai may be applied with respect to LVA Test, wherein Voice samples are taken. It may also be stated that view taken by Justice Deasi with respect to Identification of Prisoners Act, 1920, accommodating taking of voice samples may be applied with respect to Polygraph and BEOS Test. Because, in Polygraph, blood pressure, heart beat, galvanic skin response and pulse rate are measured and in BEOS Test electrical activity in the brain is measured. These are measured by Barometer, Galvanometer etc. and by Electro Encephalograph respectively. Though they cannot be considered as physical samples, just like voice samples they are also physical tests. Hence going by the reasoning given by justice Desai in *Ritesh*, they could well be accommodated under measurements within the meaning of Identification of Prisoners Act.

At this juncture, the decision of Karnataka High Court in *Rudresh (Rudrachari)* v. *State of Karnataka*[73] deserves special mention. In that case, the issue was whether a magistrate could order scientific tests *suo moto*, even without request from the police officer not below the rank of sub inspector. Karnataka High Court held that as the primary duty of the court is to ascertain the truth, it would be incorrect to say that magistrate or the court cannot direct or order an accused for medical examination as contemplated under Section 53 of The Criminal Procedure Code. So the court held that by making the order, the magistrate is well within the bounds of his power conferred under The Criminal Procedure Code and Indian Evidence Act. The Sections are not *ultra vires* to the constitution.

72. Delhi High Court, July, 31, 2013, available at https://www.legalcrystal.com/case/980239/sant-ram-sadhu-vs-state ( accessed on 12/09/2017). See also, V.S.R. Avadhani and V. Soubhagya Valli, *Criminal Investigation*: *Law, Practice and Procedure*, Asia Law House, Hyderabad, (1st edn., 2015), p.159.
73. 2014 (4) Kar.L.J. 442.

In *Maghar Singh* v. *State of Punjab,*[74] it was held that, the consent of accused is not necessary in medico legal examination of the accused. In *Anil A Lokhande* v. *State of Maharashtra,*[75] the court held that for the purpose of collection of evidence, the accused may be medically examined. For this purpose, even internal and external examination of the body could be done. Even some organs inside the body may be examined. If this dictum is taken, then the tests like Narco Analysis would well come within the ambit of Section 53. It may be stated that, the term 'Examination' under Section 53 must be amended so that the section may have wider scope to include Forensic Psychological Tests to ensure wider scope of investigation.

It is also important to note that, apart from Section 53 and 54 of The Criminal Procedure Code, 1973, there are other provisions like Section 73, Section 165 of The Indian Evidence Act and Section 255, 311 and 313 of The Code of Criminal Procedure, 1973, which invest the court with wide discretion to call and examine any one as witness,[76] if the court is of *bonafide* opinion that the examination of that witness is necessary for the just decision of the case.[77]

It is also pertinent to note that, the object of The Criminal Procedure Code Amendment Act, 2005, is actually to enable the prosecuting agency to detect serious offences. Though drawing of blood sample for the purpose of civil proceedings without consent may not be desirable, drawing of blood sample for the detection of serious offences like rape wherein investigating agency has to prove the case beyond reasonable doubt cannot be considered as violative of Article 20(3).[78]

74. A.I.R.1975 S.C. 1320.
75. 1981 Cr.L.J.125 (Bom.)
76 . In India, though we follow accusatorial system, the court is not passive. On the perusal of the provisions of The Code of Criminal Procedure (Ss176 (3),311,313,255) and Indian Evidence Act, it could be seen that court also has the power to secure evidence. Section 311 of The Code of Criminal Procedure and Section 165 of The Evidence Act confers vast and wide powers on the Court to elicit all necessary materials by playing an active role in the evidence collecting process. See, *Vikas Kumar Roorkewal* v. *State of Uttarakhand,* (2011) 2 S.C.C. 178;*Zahira Habibulla H. Sheikh and another* v. *State of Gujarat and others,* ( 2004 ) 4 S.C.C. 158. These decisions were quoted with approval in *Vinod Kumar Handa* v. *State of NCT of Delhi,* 5th July, 2012, Delhi High Court available at https://indiankanoon.org/doc/138125973/ (accessed on 12/09/2017).In this case prosecutrix was directed to give voice samples for comparison purpose.
77. *supra*.n.73.
78 . *Halappa* v. *State of Karnataka,* 2010 Cri. L.J. 4341 ( Kar.).

At this juncture, it is important to analyze, *State of Delhi Administration* v. *Pali Ram.*[79] In this case, the apex court held that, once the court forms an opinion that the assistance of the expert is essential for arriving at just determination of dispute, "the fact that this may result in the filling of loopholes in the prosecution case is purely subsidiary which may give way to the paramount consideration of doing justice." The Court also opined that, at this stage, it is too early to predict whether the opinion of Government Expert would go in favor of defense or the prosecution. So the court held that, the argument raised before the High Court is purely speculative. Thus, it may be stated that, in the interest of justice, the courts must adopt a balancing approach between individual right and community interest while ordering a forensic test.

It is also pertinent to note that, the law under Section 53 of the Code of Criminal Procedure, allows for the use of reasonable force in conducting medical examination. Though free and informed consent is considered as important by judiciary in civil cases, in *Rohit Sekhar* v. *Narayan Dutt Tiwari,*[80] *the* Court ordered for the use of appropriate force to take blood samples to prove paternity. Thus it may be stated that, in the interests of justice, liberal interpretation must be given to Sections 53, 54, 156(3) of The Code of Criminal Procedure, and, Sections 73 and 165 of Indian Evidence Act so as to empower courts to order Forensic Psychological Tests like Polygraph.

It is important to note that justice Desai in her opinion in *Ritesh* has also stated that, the rule that narrow interpretation has to be given to penal statutes is not an absolute rule.[81] Whether or not strict interpretation should be given would depend on facts of each case giving considerations of public health, public safety etc. The judge also opined that judicial notice could be taken of the fact that there is a great deal of technological advance in communications. Criminals are rampantly utilizing the benefit of technological progress in the commission of crime. Hence, in order to strengthen the hands of investigating agencies purposive interpretation must be given

79. A.I.R. 1979 S.C. 14.
80. (2012) 12 S.C.C. 554.
81. See *Kisan Trimbak Kothula and Ors.* v. *State of Maharashtra,* A.I.R. 1977 S.C. 435 and *State of Maharashtra* v. *Natwarlal Damodardas Sonil,* A.I.R. 1980 S.C.593. In all these cases it was held that rule that penal statute shall be narrowly construed is not an absolute rule.

to the provisions of Identification of Prisoners Act and Section 53 of The Criminal Procedure Code. It is also important to note that that these scientific advancements are beneficial to exonerate innocent persons also.[82] There were suggestions to amend the provisions of The Criminal Procedure Code and Identification of Prisoners Act so that technological and scientific advances in investigative processes could be effectively used.[83] The object of 2005 Amendment in Explanation (a) to Section 53 of The Code of Criminal Procedure 2005, was to facilitate investigation by means of scientific tests. Hence it would be unwise to presume that the provision would exclude Forensic Psychological Tests, which facilitate investigative efforts.

Regarding interpretation of explanation (a) to Section 53 of The Code of Criminal Procedure, dealing with examination, Justice Altab in *Ritesh Sinha*, had stated that, the ratio of the decision in *Selvi* does not enlarge but restricts the ambit of the expression "such other tests" contained in the said explanation. The judge stated that, the explanation deals with material and tangible things related to human body. It does not deal with something disembodied as voice. The Judge stated that according to Section 53 of The Code of Criminal Procedure, whether or not the examination of the person of the accused would afford evidence as to the commission of the offence rests on the satisfaction of the police officer not below the rank of sub inspector. But, once police officer makes a request to the registered medical practitioner for the examination of the person of the accused, what other tests apart from those which are expressly enumerated might be necessary in a particular case could only be decided by the medical practitioner and not by the police officer. Therefore, Justice Altab stated that "such other tests" as mentioned in the explanation includes only those tests which the registered medical practitioner would think necessary in a particular case. Therefore Justice Altab concurred with the view taken by the counsel for the appellant that expression, "such other tests "are controlled by the words "that the registered medical practitioner thinks necessary". This implies that under explanation (a) the discretion to conduct medical examination vests with medical practitioner and not in the investigating officer. Hence rule of '*ejusdem generis'* cannot be applied.

82. The empirical study conducted by the researcher affirmed this.
83 . *Ritesh Sinha* v. *State of U.P.,* ( 2013) 2 S.C.C. 357, *per* Desai. J.

Therefore the justice concluded that in any event, registered medical practitioner cannot conduct voice test.

At this juncture, it is important to note that, the issue whether administration of Forensic Psychological Tests would come within the ambit of medical examination was earlier considered by Madras High Court in *Murugesan@ Abdullah* v. *State*.[84] In that case, regarding the intention of legislators, the court had held that " legislators in their wisdom thought that apart from the tests specifically contemplated in the express words, the tests which have not expressly specified also, could be resorted for culling out the truth and arriving at a proper conclusion." The Court stated that though by the application of *ejusdem generis* rule may not permit one to include tests like Polygraph in the expression " such other tests", still the court could grasp and infer that law is not disinclined to those scientific tests. The power of the court under Section 53 was considered in *Thaniel Victor* v. *State.* [85] The court held that examination under Section 53 is not confined to examination of what is visible in the body and it may even include an examination of internal organ for the purpose contemplated under the Section. This means that the provision does not bar tests like Narco Analysis.

It is also important to examine the decisions of apex court as to the interpretation to be adopted in the light of development in science and technology. The Supreme Court had in *State of Maharashtra* v. *Dr. Praful B Desai,*[86] stated that, regarding the principle of interpretation of an ongoing statute i.e. The Criminal Procedure Code in that case., the court held that "in its application any day, the language of the Act though necessarily embedded in its own time, is nevertheless to be constructed in accordance with the need to treat it as a current law."[87] However in *Selvi* v. *State of Karnataka,*[88] the Supreme Court held that administration of tests like Narco Analysis could not be read into the expression "such other tests" under Section

84 . 2007( 2 ) M.L.J. 894.
85. 1991 Cri. L.J. 2416 (Mad.).
86. (2003) 4 S.C.C. 601.
87. *ibid.*
88. *supra* n. 1 at p.351.

53 of The Criminal Procedure Code. Thus presently the legal position is in a confusing state and the case was referred to a larger bench in *Ritesh Sinha*.[89]

It is also important to note that, the Constitution of India while laying down the Fundamental duties [90] has declared that it is the duty of every citizen of India to develop a scientific temper, spirit of inquiry and reform and to strive towards excellence to reach higher levels of achievement. In *Rohit Shekar* v. *Narayan Dutt Tiwari and Anr,* [91] the court observed that "what we wonder is that when modern tools of adjudication are at hand, must the courts refuse to step out of their dogmas and insist upon the long route to be followed at the cost of misery to the litigants. The answer obviously is no. The courts are for doing justice, by adjudicating rival claims and unearthing the truth and not for following old age practices and procedures when new better methods are available."[92]

It may thus be stated that a wider interpretation to the term "such other tests" in the Explanation A to Section 53 of The Code of Criminal Procedure must be given, as modern techniques of analyzing human physical and mental acts are developing rapidly which would advance both the interests of the accused and also the public interest. It is important that procedural law is always subservient to and is in aid to justice.[93] It may thus be stated that, the expressions "such other tests" as found in Explanation A to Section 53 of The Code of Criminal Procedure has to be amended so as to include Psychological Tests within its ambit.

Apart from Section 53, of the Code of Criminal Procedure, J. Altab also discussed Identification of Prisoners Act, regarding the source of power for taking voice samples and came to the conclusion that taking of voice samples would not come within the meaning of measurements under Identification of Prisoners Act. As there was difference of opinion between the two judges in the division bench, the matter was referred to a larger bench. Hence as of now the legal position is

89. *Ritesh Sinha* v. *State of U.P.,* ( 2013) 2 S.C.C. 357.
90. Art. 51 (h) and (i).
91 . At para 26, Delhi High Court , available at https://indiankanoon.org/doc/170781909/ (accessed on 23/10/2017). See also, (2012) 12 S.C.C. 554.
92. *ibid.*
93. *ibid.* Also see, *Shreenath and Anr.* v. *Rajesh and Ors.,* A.I.R. 1998 S.C. 1827.

ambiguous. Therefore, in order to bring more clarity in legal position, a comprehensive legislation governing Forensic Psychological Tests may be enacted, taking into consideration the advancements made in these fields.

Moreover, in several decisions like, *D. K. Basu* v. *State of West Bengal*,[94] the court had stated that there is a need for development of scientific techniques and methods for investigation and interrogation as torture and custodial deaths are blow to rule of law. The Forensic Psychological Tests are efficient scientific methods of investigation. Moreover, right to speedy investigation and trial are also fundamental rights[95] which are to be seen from the point of view of accused, victim and society at large.[96] If the investigation and trial are not speedier it would amount to miscarriage of justice and violate Article 21.[97] The scientific tests like Forensic Psychological Tests will help in speedy investigation and trial.

Law has imposed every person with a statutory duty to furnish information to the investigating officer regarding the commission of the offence.[98] Law also recognizes the duty of every person to assist the state in detection of crime and prosecution of offenders [99] and failure of which would render him liable to punishment under Section 187 of Indian Penal Code. Hence it is the duty of every person to assist the state in detecting crime and bringing criminal justice which would require him to submit to these scientific tests for the purpose of criminal investigation.

94. *Mohan Lal* v. *State of Punjab,* A.I.R. 2013 S.C. 2408.
95. *Hussainara Khatoon* v. *State of Bihar,* (1980) 1 S.C.C. 81; *.A.R.Antulay* v. *S.R.Nayak,*(1992)1 S.C.C. 225. The court examined the acceptability of a law, which does not insist for speedy process. The apex court found that fair, just, and reasonable procedure implicit in Art.21 of the Constitution creates a right of the accused to be tried speedily. It is the right of the accused and it encompasses all the stages, namely, the stage of investigation, inquiry, trial, appeal, revision and retrial.
96 . *Zahira Habibullah Sheikh and Ors.* v. *State of Gujarat and Ors.*, (2004) 4 S.C.C. 158.
97 . *A.R. Antulay* v. *S.R. Nayak*, (1992)1 S.C.C. 225.
98. The Code of Criminal Procedure, 1973, s. 39. As per the scheme of Criminal Procedure Code a statutory duty is imposed on every person, village officers and village residents to give information as to certain offences. Intentional omission to give information is punishable under Indian Penal Code under Ss. 176, 202. See Ss. 37 and 40 of The Code of Criminal procedure.
99. The Code of Criminal Procedure, 1973, Ss. 37, 161. In *State of Gujarat* v. *Anirudha Singh*, A.I.R 1997 S.C. 2780, it was held that, it is duty of every witness who has the knowledge of the commission of the crime to assist the state by giving evidence. See also, *Dharampal* v. *State*, (2014) 3 S.C.C. 306.

It is also worth mentioning that the apex court had emphasized on capacity building of law enforcement agencies in *State of Gujarat* v. *Kishanbahi.*[100] The court stressed on giving intensive training as to how scientific investigation is to be done so as to improve the investigative skills of the police.[101] The assimilation of these tests in criminal investigation would actually help in improving scientific investigation. It is important that no innocent person shall be punished and no guilty shall be acquitted. Both are public duty. So the investigation should be conducted in a manner so as to draw a just balance between citizen's right under Part III of the Constitution and the expansive power of the police to conduct investigation. The collection of evidence with the aid of Forensic Psychological Tests is not unlawful and it actually helps in investigation. It is also of much utility in getting a lead in the investigation and also in exonerating innocent suspects. Hence it may be stated that by bringing proper regulation to ensure the right of the accused and other subjects who are subjected to these tests, Forensic Psychological Tests may be utilized in criminal justice system.

## 8.4 Free and Informed Consent and Forensic Psychological Tests

In the case of tests other than Narco Analysis, the subject is not deprived of self-consciousness and is able to exercise his discretion. He understands the nature of the test. The tests are also non - invasive having no physical or psychological impact on the person undergoing the same. The subject may also withdraw consent at any time.[102] Moreover the laboratory conducts the tests only if the subject gives consent.[103] But in the case of Narco Analysis the subject is injected with a drug and he is put in a semiconscious condition. During the test the subject do not understand the nature of the test and he could not exercise his discretion and not able to withdraw his consent. He does not remember what transpired during the test. Thus, Narco Analysis Test is different in nature when compared to other tests. Therefore, it

100. (2014) 5 S.C.C.108.
101. *ibid*. See also, Gajendra .K. Goswami, "Forensic Law," Vol. L, Annual Survey of Indian Law, The Indian Law Institute, New Delhi ,2014, pp.649-673 at p.670.
102. Though this issue has not come so far.
103. As per information obtained by filing application under Right To Information Act, 2005.

is important to consider whether consent acts as a valid ground for administering this test. Hence it is important to make a conceptual analysis of consent and its relation to Narco Analysis Test.

### *8.4.1 Concept of Consent and Its Applicability in Narco Interrogation*

Oxford English dictionary[104] has defined consent both as verb and noun. As a verb, it is used in two senses. In the first sense, it means "to agree together …to come to agreement upon a matter or as a course of action.[105] In the second sense it means, to 'agree to a proposal, request etc… voluntarily to accede to, acquiesce in what another proposes or desires.[106] As a noun, the only current use is "voluntary agreement to or acquiescence in what another proposes or desires'; compliance, concurrence, permission' which is closest to the second sense of the verb consent.[107]

In the case of Narco Analysis Test, it is presumed that the subject actually voluntarily agrees to the proposal put forward by the investigating officer to the administration of the test. However, it is to be noted that the subject's autonomy provides the ground for the right to give or withhold consent. This requires that the right must be framed by the mutual obligations arising from the individual - state relationship.[108] The reasonable conception of consent ought to take both of these factors into account. Thus it may be proper to acknowledge that the subject's decision making as to undergo the scientific tests like Narco Analysis involves both consent as agreement [109]and consent as permission.[110] While consent as agreement creates obligations, consent as permission acts *by waiving the obligation of non interference with the* subject's body.[111] It could very well be stated that though

104 . Alasdiar Maclean, *Autonomy, Informed Consent and Medical Law- A Relational Challenge*, Cambridge University Press, UK, (2009), p. 111.
105 . *ibid.*
106 . *ibid.* Etymologically the word derives from the Latin conjunction of "con" meaning "together with" sentire" meaning " to feel, think or judge" which means agreement. Thus it is the first sense which is closest to the original meaning of the term.
107. *ibid.*
108. In this case investigating officer representing the state and subject as individual.
109. This occurs at the earlier stage of encounter.
110. *supra* n. 104 at p.113. Though author in this chapter is talking about doctor patient relationship, it may be applied with respect to subjects giving consent for Forensic Psychological Tests.
111. *ibid*. Italics supplied by the researcher. Consent is only a derivative or a secondary right. Consent would not to be required at all, if there were no right to bodily integrity. Thus a person

agreement lies at the heart of consent, in the case of tests like Narco Analysis it generally involves consent by permission wherein the subject *waives his corresponding right against the obligation of the state not to interfere with his body*.

Consent as permission in this case, does not in fact create a right.[112] It operates as a form of waiver than transfer of right.[113] When a subject gives consent to administer Narco Analysis Test, it is not creating any right on the investigating officer, but it actually amounts to a waiver of right corresponding an obligation of the state not to interfere with the body of the subject. However it may be noted that by giving consent, the subject is not *per se* waiving the right to bodily integrity, but only waives right to sue in case of breach of that right.

From functional perspective, though consent converts a forbidden act as legally permissible, but it do not transform an inherently wrongful act a legal one. Thus it may be stated that, for consent to have any effect, the act must be one that society already sees as essentially a good thing or at least something as acceptable. If we take the example of medical treatment, it is argued that it is for social good and that it also involves intentionally infringing individual's bodily integrity. In such cases consent is a necessary justification.

It is an important issue to consider whether the same analogy could be applied in the case of Forensic Psychological Tests like Narco Analysis. Generally, it may be stated that criminal investigation, collection of evidence and prosecution and punishment of offenders are for social good, though it involves intentional infringement of bodily integrity of the subject. The question is, whether in such circumstances, consent is a necessary justification. Common sense says yes. The significance of consent is that, in the relationships in which one individual is subordinate to another, he would lose his control in the absence of consent and the underlying rights.

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can give consent to something only if he has a right that may be waived or alienated. Thus consent reflects negative aspect of liberty.

112. It is sometimes argued that by giving consent, rights for others are created. See, Hurd, "The Moral Magic of Consent," Vol. 2(2), Legal Theory,1966, pp. 121-146 as cited in *id.* p.111.

113. *id.* at p.114.

This is very much relevant in the case of criminal investigation. There is no doubt that various agencies of the criminal justice system which is funded by the state occupy the dominant position. The subjects are in a helpless position and are at the mercy of the investigators. Hence what consent does in this contest, is not to neutralize the power imbalance but to legitimize it. Thus consent act as necessary justification for the breach of right in public interest during criminal investigation. By ensuring that the subjects have ultimate control over their own body, consent would prevent the investigating officer's authority from being exercised in an authoritative manner. It is precisely because the power balance is unavoidable in the contest of criminal investigation that the consent has become necessary for the administration of Narco Analysis Test.

In fact all the rules relating to consent applicable in general legal cases is applicable in the case of Narco Analysis also.[114] However it is to be noted that, though in ordinary cases, interference may be made with respect to a right in public interest without consent, with respect to Narco Analysis where anesthetic procedure is involved, this may not be permitted. Consent is always required for the administration of Narco Analysis Test. Moreover, due care and caution is also required.[115] Hence it may be stated that Narco Analysis Test must be done in hospitals. If it is done in the laboratory all the Operation Theatre facilities must be ensured and affidavit to that effect must be given by the laboratory along with the expert report.

Though with respect to therapeutic procedure involving surgery and anesthesia real consent is sufficient,[116] as Narco Analysis is a non-therapeutic procedure, higher standards of disclosure is required. Therefore informed consent may be made mandatory. It is true that *Selvi* decision do not speak about informed consent. But when a subject consents to undergo Narco Analysis, he is waiving his

114. The Indian Penal Code, 1860, Ss. 87 to 92. The provisions deal with consent as a valid defence.
115. Consent is a valid defence only if it is done in good faith. The Indian Penal Code, 1860,s.52 states that" Nothing is said to be done or believed in good faith which is done or believed without due care and attention."
116. *Samira Kohli* v. *Dr. Prabha Manchanda,* (2008) 2 S.C.C. 1.

right which implies an intentional act with full knowledge. Thus indirectly it incorporates informed consent. Though the subject need not know about the mechanics of the procedure or the research that was conducted with respect to that procedure or intervention, it is important that they must have sufficient knowledge in terms of the risks and effects of the intervention. Hence Narco Analysis must be conducted only with informed consent.

### *8.4.2 Scope of Consent in the case of Narco Interrogation*

In Narco interrogation, the important question to be considered is whether initial consent given before conducting the test alone is sufficient to admit the test results. There is also an argument that, for the consent to be valid, the subject must give consent not only to undergo the test but also to admit the test results as evidence in trial.[117] There are only few articles which deal with this issue of double consent.[118] One of the articles discusses two cases,[119] *Brown* v. *State*[120] and *People* v. *Esposito.*[121] In both, the position seems to be that consent to Narco Analysis in the first place would amount to consent to admit the results of the test. The subject cannot consent to favourable results and refuse his consent with respect to damaging results. In *Browns* case, the defendant himself demanded Narco Analysis Test. But, when test results turned out against him he refused to accept it. The court held that he cannot do that. In *Esposito*, accused claimed that he was insane and he also agreed to voluntarily surrender to Narco Test. In this case also the court held that accused cannot do both. It is important to study this double consent doctrine. It may be noted that as per the dictums in *Brown* and *Esposito,* the Narco Analysis results would be admissible in evidence if the subject was not coerced initially to submit to the injection.

117 . James I. Michaelis, "Quaere, Whether 'In Vino Veritas': An Analysis of the Truth Serum Cases" Issues in Criminology," Vol. 2(2), Drug Use and Crime, Fall 1966, pp. 245-267 at p.262.
118. *ibid.*
119. *ibid.*
120. 256 U.S. 335 (1921).
121. *People* v. *Esposito*, 287 NY 389 (1942).

However in *Town Send* v. *Sain,* [122] it was opined that the crucial test was whether the drug was of such a nature that the will of accused was overborne, that he was unable to resist confession.[123] As per the courts doctrine in that case[124] the results of Narco Test would be inadmissible in evidence even if the subject has voluntarily consented to it or even if he himself has demanded it. In that case the accused himself had demanded the drug but he did not demand the test. The court held that though the persons who questioned the subject after the drug is administered was unaware of the truth serum's properties of the drug, if the questioning by the police produced a confession which is not the product of free intellect, the confession is inadmissible in evidence. Because truth serum had rendered the subject incapable of controlling his disclosure. Thus it seems that as per the Supreme Court's decision in *Town Send*, Narco Analysis Test results are inadmissible in evidence unless the subject waives his privilege against self-incrimination before and after the test. It is to be analysed, whether this rule has to be applied in India, even with respect to admissibility of evidence under Section 27 of The Indian Evidence Act.

The very feature of this test is that the subject is unable to prevent disclosure of information. Since the concept of consent is comprehended as state of mind evidenced by intentional act,[125] it is important that there remains voluntary and informed consent of the subject throughout the test. This issue of double consent may be of less relevance after *Selvi* decision as Supreme Court has prohibited the use of Narco Test results as direct evidence. Still, it needs consideration, as the derivative and transactional use of the test results are permitted.

At this juncture, it is important to note that when a person gives consent, he accepts all the natural risks and consequences of that to which he has given consent. The very feature of this test is that the subject would be removed of all his inhibitions and he would become talkative. When a person gives consent to undergo Narco

122. 372 U.S. 293 (1963).
123. *ibid.*
124. Justice Goldberg's language.
125 . Alasdiar Maclean, *supra* n. 104 at p.111.

Analysis Test, he naturally knows about this. Hence when he gives consent, it may be assumed that he also consents to reveal his secret information. Thus, as stated in *Browns* case and *Esposito* case, consent given at the first instance may be considered as consent for the results of the test. In fact, *Town Send* case may be distinguished. In that case, the subject had not given consent for taking the Test. He had only demanded the drug to get relief from his discomfort. Hence in that case, there was no consent at all. Had *Town Send* gave consent for the test in the first instance, the decision would have been different.

It may thus be stated that, in Indian Legal frame work, application of doctrine of double consent is limited as the test results by themselves are not admissible in evidence. Not only that, as per the law of consent, once a free consent is given it may be taken as consent for all the natural risks involved in that to which he has given consent. So it may be assumed that he has given consent with respect to all incriminatory statement made during the test. Hence if a fact is deposed to have discovered in consequence of any statement made during the test, in so far as it distinctly relates to the fact so discovered is admissible in evidence under Section 27 of Indian Evidence Act and it is legal. Hence transactional or derivative use of the test result is legal.

### *8.4.3* Whether Consent is Waiver of Right Against Self Incrimination?

Some scholars [126] have considered the issue whether conducting of lie detector test with consent would affect fundamental right to human dignity. Regarding this issue, Michael A Simon, in his article has stated that refusal to permit a person, on the grounds of human dignity, the freedom to avail himself of the opportunity to take certain tests to exonerate himself of criminal liability is unjustified.[127] It would prevent not only from acting in one's own interest but also

126 . Helen Silving, "Testing of the Unconscious in Criminal Cases," Harvard Law Review, Vol. 69 (4), February 1956, pp. 683-705 at p.688. See also Michael A. Simon, "Shall We Ask the Lie Detector?," Science, Technology and Human Values, Vol. 8 (3),Summer 1983, pp. 3-13 at pp. 7-8. Both the authors argue that lie detector tests shall not be conducted even with consent as it would affect human dignity and freedom of will and also would result in waiver of right against self-incrimination. But Michael Simon states that this argument applies only when a person is compelled to undergo the tests and not when he voluntarily takes the tests.

127. Michael A. Simon, *supra.*

from exercising very freedom and rationality of being protected.[128] Thus free and informed consent to take the tests could be a justified ground for conducting the tests.

Moreover there are also some scholarly views that the principle that fundamental rights in India could not be waived does not hold good especially after Code of Criminal Procedure Amendment Act,2005, whereby the concept of plea bargaining was incorporated in criminal jurisprudence in India. Sandeep Menon, in article has stated that recent developments have converted the nature of "right to fair trial" from the category of right for the benefit of public to right for the benefit of individual.[129] He was referring about the amendments made in The Code of Criminal Procedure in 2005 whereby the concept of plea bargaining was incorporated. Plea bargaining affects many rights which fall within the category of right to fair trial like right to access to lawyer, right to defence, right against self incrimination, right to examine and cross examine witnesses etc. The author states that these rights are significant not only from the perspective of general public but are significant when comes to the protection at the individual level also.These rights are waived to some extent in the case of plea bargaining.[130] The author also cited the observations made Justice S.K. Das, in *Bashershar Nath* v. *Commissioner of Income Tax* [131] The justice has made a distinction between Fundamental rights for the benefit of individual and Fundamental right for the benefit of general public. He made specific observation regarding Article 14, that Constitution has vested the right in the individual primarily intending to benefit him. Such right did not impinge on the right of others. There could be waiver of such a right, provided it was not forbidden by law or did not contravene public policy or public morals. So according to him the true test for determining whether a fundamental right could be waived or not is whether the right

128. *ibid.*
129 . Sandeep Menon Nandakumar, "Rights and Waiver: What the Law is and What the Law Ought to be," Journal of Legal Studies and Research, 2013, pp.1-19 at p.2, available at http://jsslawcollege.in/wp-content/uploads/2013/12/RIGHTS-AND-WAIVER_-WHAT-THE-LAW-IS-AND-WHAT-THE-LAW-OUGHT-TO-BE.pdf (accessed on 24/10/2017). The author was referring to the developments that took place in 2005 Criminal Procedure Amendment Act whereby the concept of plea bargaining was incorporated.
130. *id.* at p. 8.
131. *Basheshar Nath* v. *Commissioner of Income Tax,* A.I.R. 1959 S.C. 149.

is primarily meant for the benefit of individual or for the benefit of general public.[132] Comparing with US jurisprudence, the author states that, prior to the incorporating of the concept of plea bargaining, US courts also were of the view that doctrine of waiver was not applicable in that country.[133] Hence the author suggests that, after the incorporation of the concept of plea bargaining, it is desirable to accept that the concept of waiver is applicable in India than blatantly reject it.[134]

It may be stated that subjecting the accused to Forensic Psychological Tests with his consent is not illegal. Therefore with respect to offences punishable with more than 10 years imprisonment, life imprisonment and death penalty wherein concept of plea bargaining is not applicable, Narco Analysis Test may be used as investigative aid with the consent of the accused. In the case of non invasive tests, with respect to offences punishable with more than two years imprisonment[135] the tests may be used as investigative aid, even without consent and the results may be admitted as corroborative evidence.

## 8.5 Forensic Psychological Tests: Outright Ban or Adoption With Proper Safeguards?

As early as in 1955, the United Nations had referred to the right comprising the 'duty of the state to protect human life against unwarranted actions by public authorities as well as by private persons.[136] This duty has since been reiterated and

132. *id*. at p.176.
133. See, *Cancemi* v. *People*, 18 NY 128 (1858) ,where the Court held that the defendant cannot waive a jury trial because even though the law recognizes the concept of waiver even to the extent of waiving constitutional private rights, so far as fair trial is concerned, the interest of the public in fair trial overrides the defendant's right to choose his own trial tactics. However later cases shows exactly contrary view.
134. *supra* n. 129 at p. 15. The author also states that Fundamental Right's in US Constitution and Indian Constitution are in *pari materia*. He also states that after *Maneka Gandhi* v. *Union of India,* (A.I.R 1978 S.C.59) the concept of natural rights as prevailed in US constitutional jurisprudence is incorporated in India also.
135. This distinction is made based on seriousness of the offence as specified in The Code of Criminal Procedure. As per s. 2(x) of The Code of Criminal Procedure, 1973, warrant case is the one in which offence is punishable with more than 2 years imprisonment.
136. Jonathan Doak, *Victims Rights, Human Rights and Criminal Justice: Re Conceiving the Role of Third Parties,* Oxford and Portland , Orgon, USA,(2008), p. 37.

further developed in international and regional[137] human rights law through both hard and soft law instruments and case law.[138] This right also entails the right of the victims[139] and public at large to have their human rights protected by proper detection and investigation of crimes. It would thus appear that, failure by the police or by any criminal justice agency in conducting effective criminal investigation would constitute breach of International Human Rights. For this purpose, scientific tests like Forensic Psychological Tests would be of much utility. It may be stated that if the tests are *per se* excluded, it would have adverse impact on the right of the victims and public at large to have their human rights protected by effective investigation of crimes and prosecution of offenders.

At the same time, even accused has the right to volunteer to the tests if he wishes to exonerate himself from the criminal charge. If the evidence based on these tests provides adequate evidence to prove his innocence, refusing it on the ground that it would violate his right to human dignity is really unwarranted in such cases.[140] It is also pertinent to note that dignity of the society could not be served by inflicting

137. For instance, Art. 2 of The European Convention For the Protection of Human Rights and Fundamental Freedoms, 1950, require states not only to refrain from taking life but also to take steps to protect life against threats from third parties.

138. *Edwards* v *UK*, (2002)35 EHRR 487, *Valasquez Rodriguez* v. *Honduras*, (1989) 28 ILM291, In both cases, the court stated that if Human rights violation by the private parties are not seriously investigated, those parties are aided in a sense by the state and hence state will be responsible under international plane.

139 . UN Declaration of the Basic Principles of Justice for the Victims of Crime and Abuse of Power, 1985, has also recognised various rights of victims like access to justice and fair treatment, restitution, compensation by the state and assistance towards recovery. These Rights of the victims must also be considered in every stages of criminal justice system. Malimath Committee had recommended that the victim must have right to participation in investigation. He must be allowed to give suggestions with respect to investigation and he should also be given the power to move to the court to get appropriate directions to ensure proper investigation of the case. See Dr. Justice V.S. Malimath, *Committee on Reforms of Criminal Justice Systems*, Government of India , Ministry of Home affairs, 2003, p.270. UN Principles on the Effective Investigation and Documentation of Torture and Other Cruel, Inhuman and Degrading Treatment or Punishment, 2000, Principle 4, provides that victims and their legal representatives have rights both to be informed and have access to any hearing or relevant information about the investigation, and are entitled to present additional evidence. Guideline 13(d) of the UN Guidelines on the Role of Prosecutors, 1990 and The Standards of Professional Responsibility and Statement of the Essential Duties and Rights of Prosecutors, 1999, Art [4.3] places prosecutors under an obligation to ensure that victims are informed of all relevant decisions relating to the case.

140. Robinson O. Everett, "New Procedures of Scientific Investigation and the Protection of the Accused's Rights," Vol. 32(1), Duke Law Journal, 1959, pp. 32-77 at p.63.

punishment on innocent by excluding evidence which is in his favour.[141] Such refusal would affect accused's right to present defence.

Moreover, it could be seen that the trend in most countries is not *per se* ban or *per se* admissibility of Forensic Psychological Tests, but adopting a case by case approach. For instance, US courts adopt the policy of allowing the investigators to use the test on a willing subject and probably the test results are also admitted in evidence if the courts are satisfied with their reliability.[142] Scholarly views are that this trend is more consistent with true balance of values.[143]

Some of the decisions of High Courts in India are also consistent with this view. For instance the Gujarat High Court in *Vinodbhai Gangadas Vanjani* v. *State of Gujarat*[144], *Dr. Purushottam Swaroopchand Soni* v. *The State of Gujarat*[145]and in *Ajitbhai Pravinbhai Patel* v. *State of Gujarat,*[146] permitted the accused to undergo Narco Analysis Test, when he volunteers for the test so as to exonerate him.[147] In all the cases accused were facing murder charge and there was only circumstantial evidence implicating the accused. In all the cases, court held that fair trial requires that all possible evidence is required to be brought on record to determine the guilt or innocence of the accused. Therefore, denying the accused the opportunity to present certain evidence on the ground that trial would be delayed would amount to substantial injustice to the accused especially when he is faced serious charges. In *Puroshottam* case, court held that favourable lie detector test results would not

141. *ibid*.
142. For instance, in the case of Polygraph, Forensic Hypnosis same approach is adopted.
143 . *supra* n. 140.
144. (2016), Justice G.B. Shah, Judgment dtd. 03/05/2016 available at https://indiankanoon.org/doc/136734453/ (accessed on 14/09/2017).
145. (2007) 2 G.L.R. 2088, available at https://indiankanoon.org/doc/1702244/ (accessed on 24/10/2017).
146. *Ajitbhai Pravinbhai Patel* v. *State of Gujarat*, Justice G.R. Udhwani, Judgment dtd. 14/08/2017, available at https://indiankanoon.org/doc/11862304/ (accessed on 13/09/2017).
147. Bombay High Court had also permitted the accused to take the test when he volunteered for Narco Anlaysis during investigation. See *Mahesh* v. *State of Maharashtra,* JJ. Deshmukh and Justice Shinde, Judgment dtd. 02/08/2010, available at https://indiankanoon.org/doc/605543/ (accessed on 14/09/2017). Similarly Rajasthan High Court in *Bahadur Singh Gujar and Anr* v. *State of Rajasthan*, 5th October 2016, available at https://indiankanoon.org/doc/8391166/ (accessed on 14/09/2017). Justice Mohammed Rafiq, had also permitted the accused to be subjected to Narco Analysis Tests so as to exonerate him during investigation stage.

automatically exonerate the accused if there is other evidence against him. The evidence would be evaluated in their totality.

In *Puroshottam* case and in *Vinodbhai* case, the accused prayed to conduct Forensic Psychological Tests during trial stage. The prayer was admitted as they had prayed for the tests even during investigation stage. In both cases, court held that right of the accused to present evidence in his favour flows from Articles 14 and 21 of the Constitution. If accused is deprived to present evidence in the form of scientific evidence in the nature of Forensic Psychological Tests, it would amount to denial of his rights. The court even stated that, if the tests are allowed, at the most, it may result in delaying the trial by few days. But, justice would be done to the accused and the prosecution can have no grievance about the test.

But Rajasthan High Court in *Pappuram* v. *State of Rajasthan,*[148] wherein accused sought permission to conduct Forensic Psychological Tests during trial stage refused permission for the same. It seems that Rajasthan High Court has distinguished the decisions of other high Courts on the ground that in their cases the accused had made the request at later stage during trial and had not requested for the test during investigation stage. Not only that those earlier cases in which the tests were permitted, were solely based on circumstantial evidence. But in the present case there are direct evidence implicating the accused. Thus it may be stated that, the attitude of judiciary in India is to allow the accused to voluntarily undertake Forensic Psychological Tests, so as to exonerate him.[149]

There are juristic writings which states that as criminal law places emphasis on *mens rea* the courts will always be confronted with the problem of determining the state of mind of the accused. [150] For instance, in the case where insanity which

148. Criminal (Misc) petition No.3230/2016, Justice Vijay Bishnoi, 27/01/2017 available at https://indiankanoon.org/doc/100097690/ (accessed on 14/09/2017). Same view was taken by Delhi High Court which was confirmed by the Supreme Court. "Supreme Court Dismisses Accused's Petition Seeking Narco Analysis Test...," September 9, 2017, Live Law News Network, available at http://www.livelaw.in/sc-dismisses-accuseds-petition-seeking-narco-analysis-test/ (accessed on 24/10/2017).
149. From the newspaper report, it seems that the apex court and Delhi High Court also took the same approach. The courts have distinguished prior High court decisions. *ibid.*
150. *supra* n. 140 at p.64.

embraces both conscious and unconscious mind of the accused is raised as a defence, court must to some extent probe beyond the conscious mind of the defendant. The judges and jury may place him under observation and may examine his conscious and unconscious mind at those times and also in ways in which he may not have specifically consented. If Polygraph or Truth Serum Test is used to accomplish this examination in a more accurate and scientific manner it would be absurd to state that an invasion of human dignity of the accused has taken place.

Similarly, most of the Criminal Codes [151] have permitted to observe the behaviour of the accused during the trial and freely draw inference from such behaviour. In these situations judges are not considered to have invaded with accused mental processes.[152] In these circumstances, the accused had not consented to the drawing of such inference whereas persons who have consented to take Forensic Psychological Tests have agreed to drawing of such inferences from his physical reactions whether favourable or unfavourable.[153] This situation seems to be more in conformity with the accused's dignity than with former situation.[154]

Thus it may be stated that, in order to balance the interest of accused, victim and public at large, Forensic Psychological Tests must not be banned. In the case of Narco Analysis, the test must be conducted only with consent. All the tests except Narco Analysis may be used as an investigative aid even without the consent of the subject. With proper legislative safeguards, the test results may be used as corroborative evidence by adopting case by case approach. As far as Narco Analysis is concerned, it may be stated that though the reliability of truth serum test is not great enough to warrant the judicial use of the test, their accuracy seems sufficient to justify pretrial use by the investigators and it should be allowed to be done under the aegis of qualified experts.[155] Thus it may be stated that a comprehensive legislation governing Forensic Psychological Tests incorporating all the safeguards is the need

151 . For instance Germany, India also, as per s. 280 of The Code of Criminal Procedure, 1973, permits the court to record as he thinks material respecting the demeanour of a witness whilst under examination.
152. *supra* n. 140 at p.65.
153 . *ibid.*
154. *ibid.*
155 . *ibid*

of the hour. A model legislation governing these tests which also provide adequate safeguards to the persons subjected to these tests is provided in the appendix X.

## 8.6 Empirical Study I

To analyse whether Forensic Psychological Tests violates rights of the accused and also to determine whether it could be conducted in public interest, a questionnaire was prepared for investigating officers of all the districts in Kerala.[156] The officers range from Sub Inspector to Inspector General. The details of the police officers were collected from the website of Kerala police.[157]

### *8.6.1 Objective of the Study*

The objective of the study was to analyse whether the tests are helpful in exonerating the innocent and whether adequate safeguards are taken by the investigating officers on their part, to protect the rights of the accused. It is also useful to analyse whether the tests are helpful to the investigating officers in their collection of evidence, in exonerating the innocent and hence whether the tests could be promoted in public interest. In Kerala, the tests are conducted as per the circular issued by Director General of Police in 2010[158] and also as per *Selvi* guidelines.

Other objectives include

1. Circumstances in which the investigating officers resort to the tests;
2. To ascertain reasons for not resorting to the tests by the investigating officers;
3. Whether investigating officers are exercising their discretionary powers in investigation arbitrarily by rushing to the tests?;
4. To analyse the impact of *Selvi* decision: whether it has affected collection of evidence during investigation, how it has affected the rights of the subjects who undergo the tests;
5. What should be the probative value of the evidence obtained from the test?;
6. What are the problems regarding admissibility of scientific evidence?;

156. Questionnaire addressed to the police officers are provided in Appendix VIII.
157. http://www.keralapolice.org/.
158. Circular on the use of Polygraph, Narco Analysis and Brain Fingerprinting Techniques in criminal investigation, Circular 37/2010, dtd. 27/07/2010, available at http://www.keralapolice.org/media/pdf/circulars/2010/37.pdf (accessed on 24/10/2017).

7. What are the factors that may contribute to improve scientific investigation?

### 8.6.2. Limitation of the Study

As most of the police officers were busy and overburdened, it was difficult to get information even after sending questionnaires. It was also difficult to get their appointment. So the researcher personally visited many police stations and police officials and interviewed them. Some of them responded through telephone, after prior appointment. Most of the police officers, though were interested in promoting research in these areas, were reluctant to divulge information.

### *8.6.3 Main Hypothesis*

Forensic Psychological Tests are important investigative aid.

### *8.6.4 Sampling Frame*

List of the police officers of sub inspectors and officers above their rank were collected from the website of Kerala police, which were approxiately1250 in number.

### *8.6.5 Sampling Size:*

There are 19 police districts including 5 commissionerates in Kerala and from each commissionerate 5 police officers and from other districts 4 officers, above the rank of Sub-Inspectors were contacted. Out of 81 police officers selected and contacted in the state 77 responded.

***8.6.6 Units of Observation:*** Officers above the rank of Sub Inspectors.

### *8.6.7 Method of Data Collection*

For data collection, the researcher mainly adopted two methods. Interview method and questionnaire method.

1. **Interview method:** In the case of senior police officers like Commissioner of Police, Superintendent of Police (Crime Bureau) etc, though questionnaire was given, the researcher collected information personally through interview method. The researcher was able to extract lot of information by adopting this method.

2. **Questionnaire method:** To junior level officers, questionnaires were distributed in person. Some of them responded immediately and some responded through telephone after fixing appointment.

The questionnaire was an admixture of open and closed ended questions.

***8.6.8. Approximate Number of Questions in the Questionnaire***: 29 questions.

***8.6.9. Coding***

Some questions were not pre coded as researcher felt that it may result in bias towards the findings of the researcher and it was also felt that respondent may feel restrictive also if they are not given free choice to express their opinions and suggestions. However for few questions where the answers sought may be specific, the questions were made as closed ended ones and codes were allotted to them. The questionnaire is provided in the Appendix VIII.

***8.6.10. Analysis of Data and Interpretation***

1. **Number of years of service of the sample respondents**

**Table 1**

| Total Number of years | Total number of police officers (77) | Percentage |
|---|---|---|
| 0-10 | 13 | 17 |
| 11-20 | 36 | 47 |
| 21-30 | 18 | 23 |
| More than 30 | 10 | 13 |

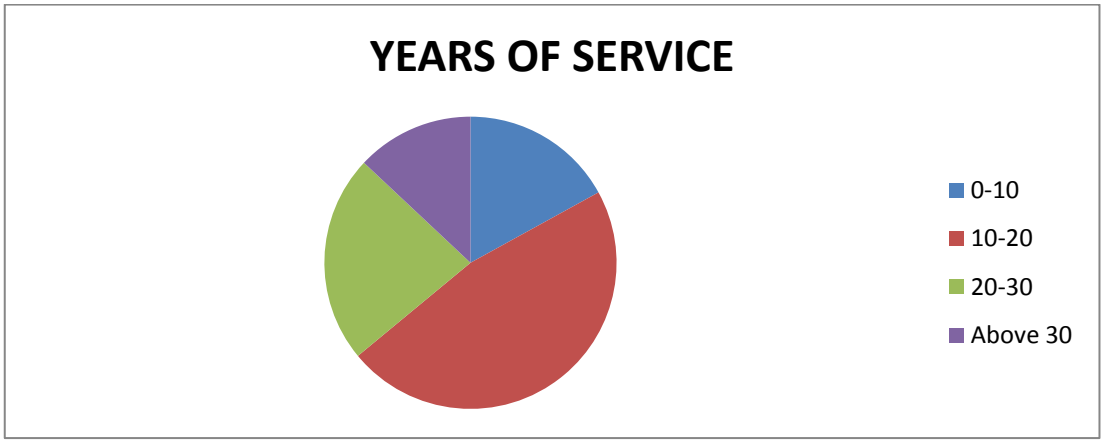


Fig 1

**Interpretation:** Number of years of service ranged from one and half years to 35 years.

2. **Number of sample respondents who have resorted to Forensic Psychological Tests**

**Table 2**

| | In Number | Percentage |
|---|---|---|
| Number of Sample Respondents resorted to test | 33 | 43 |
| Number of Sample Respondents not resorted to test | 44 | 57 |
| Total | 77 | 100 |

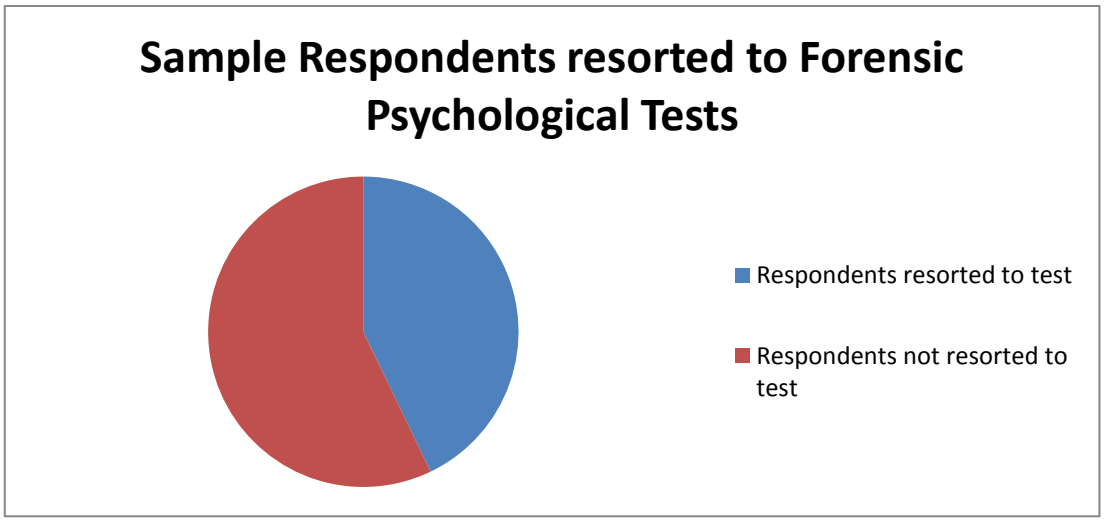


Fig 2

**3. Persons who are subjected to Forensic Psychological Tests**

Mostly the accused and witnesses and only very rarely victims are subjected to the tests.

**4. Forensic Psychological Test mostly used by sample respondents**

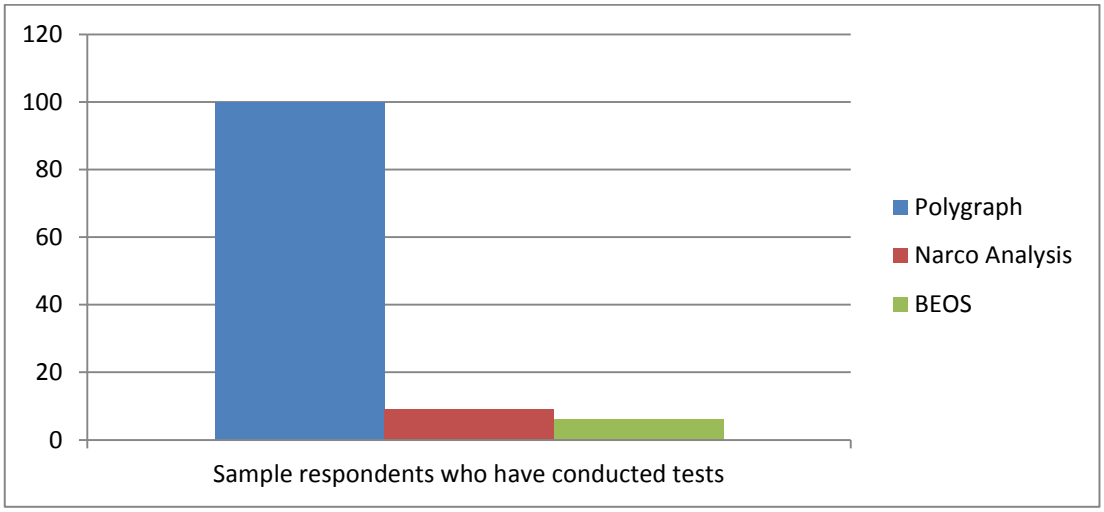


Fig 3

**Interpretation**: 100% of the sample respondents who had resorted to Forensic Psychological Tests have used Polygraph Test. Most of them have conducted the test at forensic science laboratory at Thiruvanathapuram. Among them 9% have used Narco Analysis from DFS Gujarat and Bangalore laboratory, in addition to Polygraph Test. Also among them, 6% have used BEOS from DFS Gujarat, additionally. None of them have used Layered Voice Analysis Test.

**5. Type of Cases in which sample respondents resort to Forensic Psychological Tests**

**Interpretation**: 100% of them stated that only in stake cases where the offence is very serious they go for Forensic Psychological Tests.

## 6. Circumstances in which sample respondents go for Forensic Psychological Tests

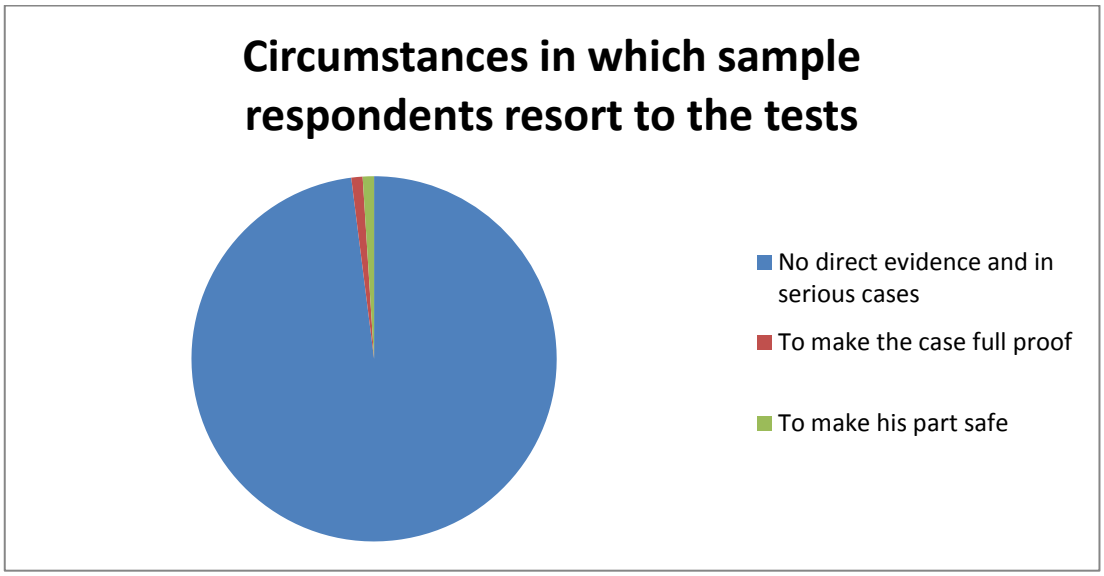


**Fig 4**

**Interpretation**:98% of the sample respondents stated that only in very serious and stake cases in which there is no direct evidence and investigating officer feels that by going for the tests he may get a lead in the investigation they go for the tests. The tests have actually helped them to exonerate innocent and also get more evidence against guilty and further lead in the crime.1% of them stated that they go for the tests to make the case fool proof so as to secure a conviction. Another 1% of them stated that they go for the tests to make their part safe and absolve themselves from liability in not getting any lead.

## 7. Whether Forensic Psychological Tests have helped the sample respondents in making effective investigation

Table 3

| | Number of sample respondents | % of sample respondents |
|---|---|---|
| Helped | 30 | 91 |
| Not Helped | 3 | 9 |
| Total | 33 | 100 |

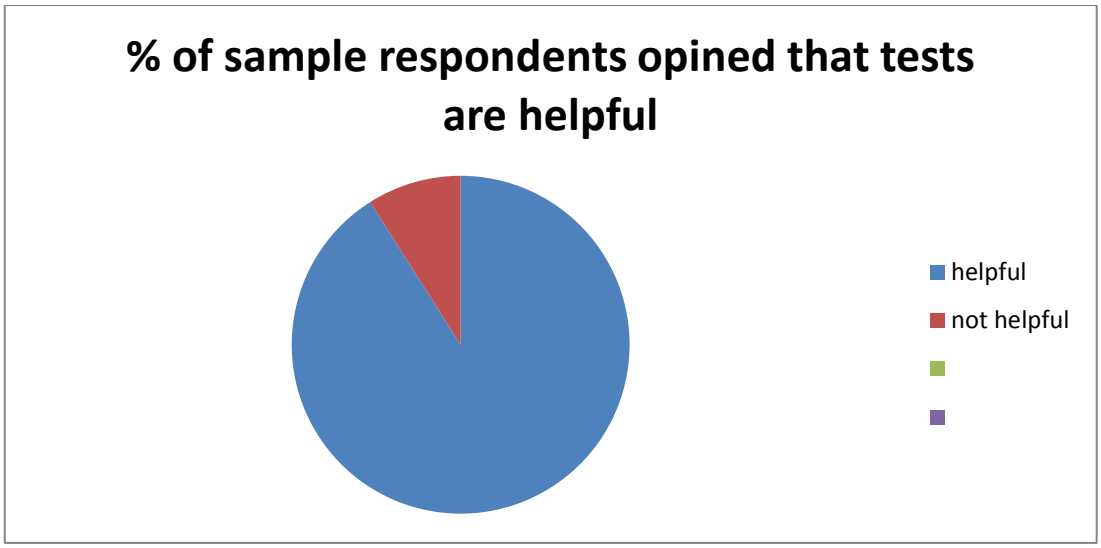


Fig 5

**Interpretation**: 91% of the sample respondents who have resorted to the tests have opined that the tests have helped in their investigation mostly by exonerating the innocent suspects and also in getting a lead. 9% of the sample respondents who have resorted to the tests have opined that the tests have not helped them in getting a lead in the investigation. All of them strongly agreed that banning of the test would adversely affect their investigative efforts.

8. **Reasons stated by those sample respondents for not resorting to Forensic Psychological Tests**:

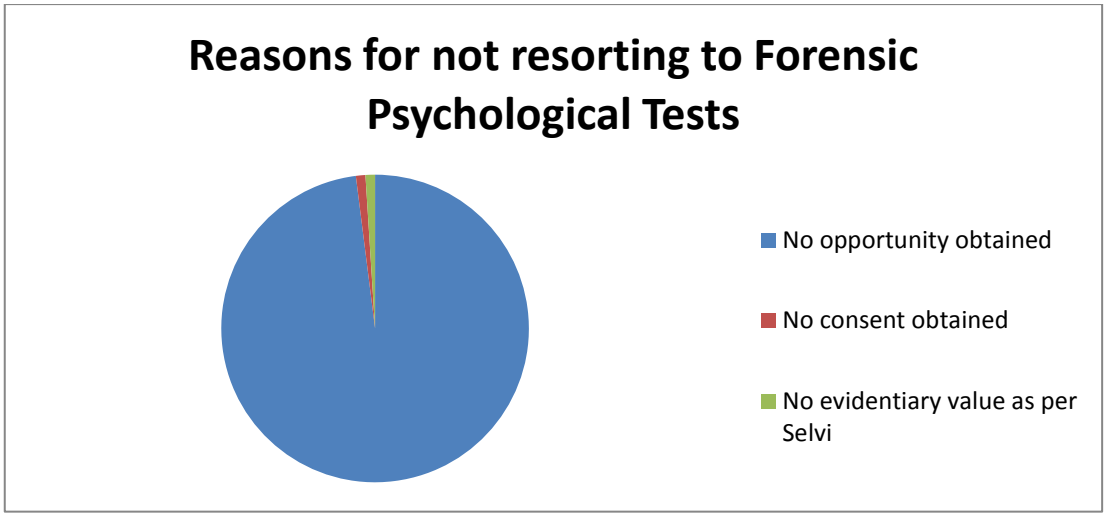


Fig 6

**Interpretation**:98% of them opined that they did not get any opportunity to conduct these tests as in all the cases investigated by the officer were mainly based on direct evidence.1% of them opined that they did not resort of the test as consent was not given by the subject. Another 1% stated that they did not resort to it as evidentiary value of the test was reduced due to *Selvi* decision. All of them also expressed the opinion that they would resort to the tests in a fit case.

**9. Whether investigating officers use their discretionary power to resort to the tests arbitrarily**

**Interpretation**: All the investigating officers stated that they strongly disagree to the opinion that investigating officer's rush to the tests without making any efforts to properly investigate the case. 98% of the sample respondents stated that only in very serious and stake cases in which there is no direct evidence and investigating officer feels that by going for the tests he may get a lead in the investigation they go for the tests. All of them stated that though it is the investigating officer himself decide to go for the tests after he gets consent from the subject, usually the officers of the higher rank also are informed as to the conduct of the test. Thus it may be concluded that the investigating officers do not use their discretionary powers arbitrarily.

**10. Impact of *Selvi* decision:**

**Interpretation**: 100% of the sample respondents have opined that the decision of the Supreme Court in *Selvi* has restricted the power of investigating officers in the collection of evidence. All of them have also opined that the subjects are willfully refusing their consent to undergo the tests after *Selvi* decision. They have also opined that the judiciary has become more cautious in giving sanction to conduct these tests after *Selvi* decision. They have also stated that additional safeguards are taken after *Selvi* decision to ensure the health of the subjects by the investigating officers.

## 11. Probative value of information obtained from Forensic Psychological Tests

(a) As Investigative aid:

**Interpretation**: 100% of them strongly agreed that it must be used as investigative aid

(b) As corroborative evidence:

Table 4

| | Number of sample respondents | Percentage |
|---|---|---|
| Strongly agree | 58 | 75 |
| Agree | 15 | 20 |
| Disagree | 4 | 5 |
| Strongly Disagree | 0 | 0 |
| Total | 77 | 100 |

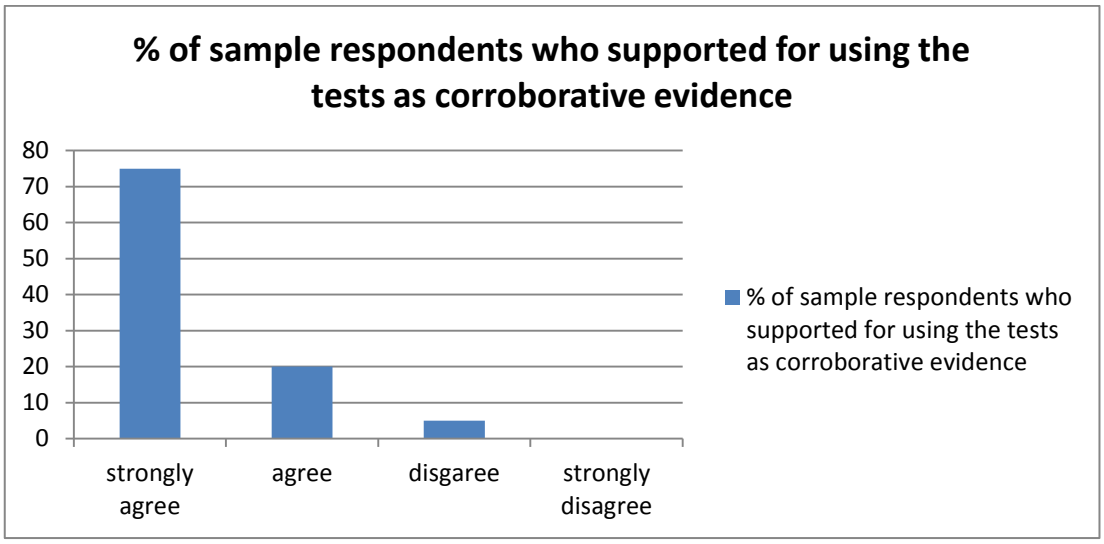


Fig 7

**Interpretation**: 75% of them strongly agreed that it must also be used as corroborative evidence. 20% of them agreed that it must be used as corroborative evidence. 5% of them disagreed that it must be used as corroborative evidence.

**(c) As substantive Evidence:**

Table 5

| | No: of sample respondents | % of sample respondents |
|---|---|---|
| Strongly disagree | 42 | 55 |
| Disagree | 27 | 35 |
| Agree | 8 | 10 |
| Strongly Agree | 0 | 0 |
| Total | 77 | 100 |

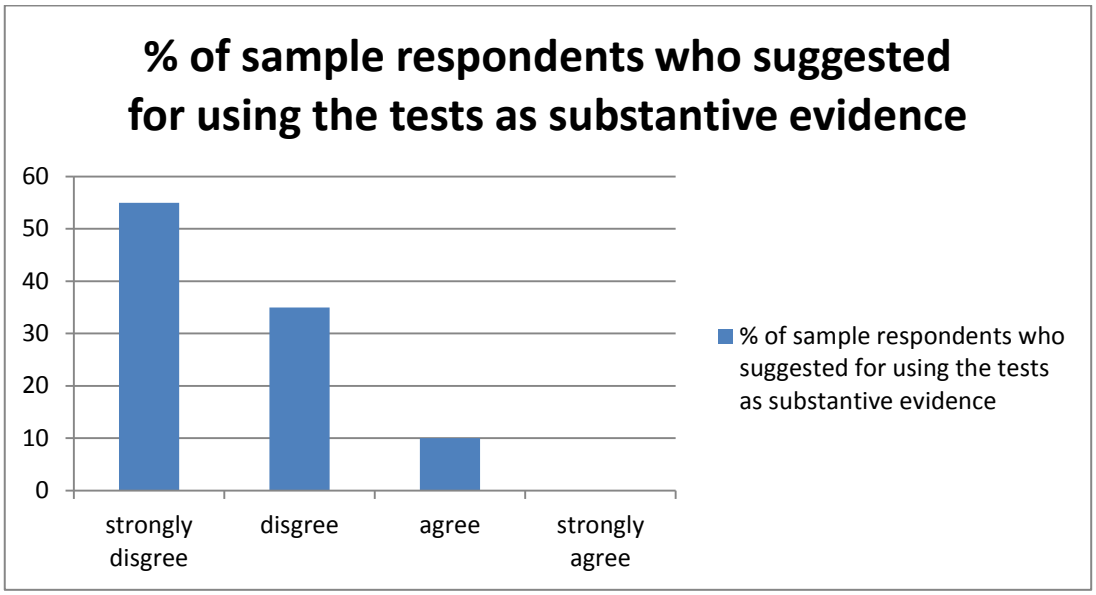


Fig 8

**Interpretation:** 55% of them strongly disagreed that it must be used as substantive evidence.35% of them disagreed that it must be used as substantive evidence.10% of them agreed that it must also be used as substantive evidence.

**12. Role of in service training in improving professional competency.**

**Interpretation**

100% of the sample respondents opined that they have attended training conducted either by Institutes of Management in Government, Kerala Police Academy, Trissur and Kerala Police Training College, Thiruvananthapuram. All of them also opined that training was very useful to them. Some of the officers suggested that for lower level officers also in-service training must be made more importance.

**13. Factors acting as obstacles for the assimilation of scientific evidence in criminal justice system:**

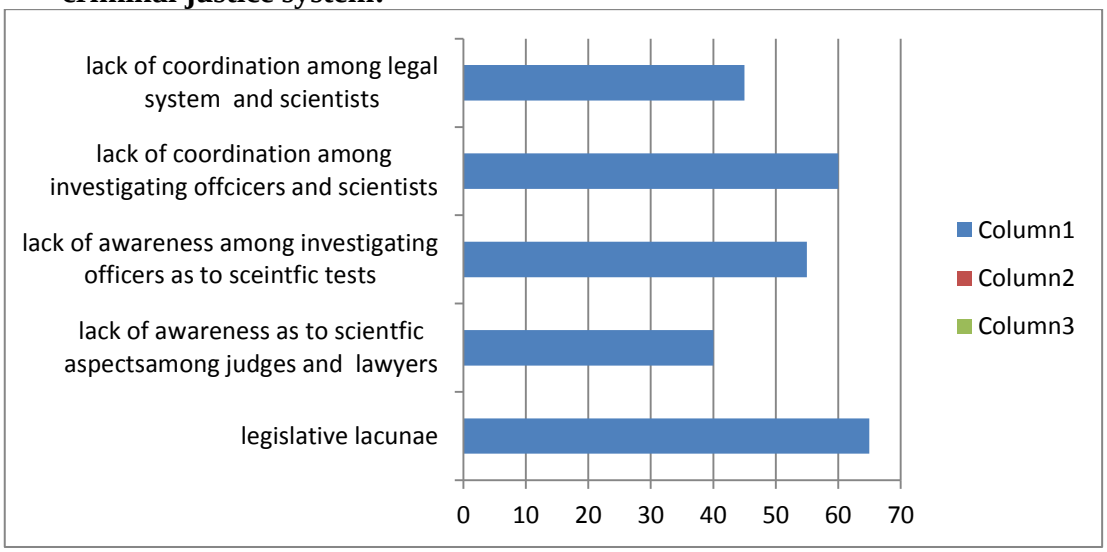


Fig 9

**Interpretation**

65% of them opined that present legislative frame work is not adequate to deal with scientific evidence and hence suggested amendments in the Code of Criminal Procedure, Indian Evidence Act and Identification of Prisoners Act. Some of them suggested for enactment of new legislation governing scientific evidence.40% of them believes that lack of awareness among lawyers and judges as to scientific aspects acts as the obstacle. 55% of them believes that lack of awareness among investigating officers as to scientific aspects as the obstacle.60% of them believed that lack of co-ordination between scientists' and investigating officers is the obstacle. 60% of them believed that lack of co-ordination among investigating officers and scientists. 45% of them believed that lack of co-ordination between scientists and legal system.

## 14. Suggestions for improving scientific investigation:

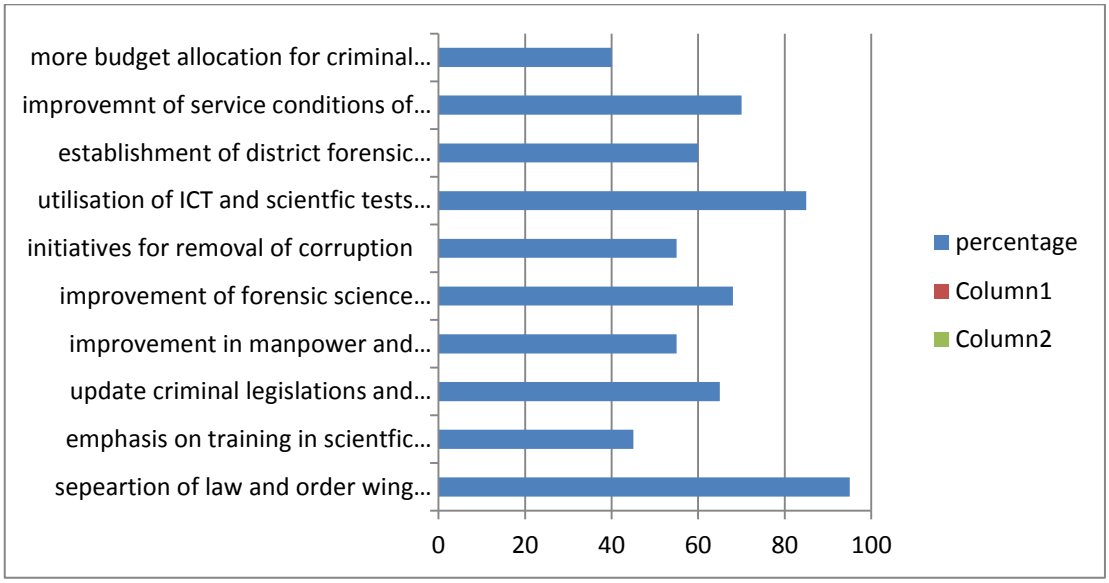


Fig 10

**Interpretation**

95% of them suggested for separation of law and order wing and investigation wing.45% of them suggested for emphasis on training in scientific tests for lower level officers and 65% of them suggested for updating criminal legislations and police standing orders.55% of them suggested for improvement in manpower and infrastructure in police;68% suggested for improvement of Forensic Science Service; 55% of them suggested for initiatives for removal of corruption; 85% of them suggested for utilization of information and communication technology and scientific tests in investigation; 60% of them suggested for establishment of District Forensic Science Laboratory in every district; 70% of them suggested for improvement of service conditions of the police and 40% of them suggested for more budget allocation for criminal justice system.

### 8.6.11. Interpretations and Findings Based on Empirical Study I

The sample respondents range from the rank of Sub Inspector to Inspector General of Police. Among the sample respondents only 43% of sample respondents had the opportunity to resort to the tests. Their service experience ranged from 1 and half years to 35 years. It is the accused, who are mostly subjected to the tests.100% of the sample respondents who had resorted to Forensic Psychological Tests have

used Polygraph Test. Most of them have conducted the test at Forensic Science Laboratory at Thiruvanathapuram. Among them, 9% have used Narco Analysis from DFS Gujarat and Bangalore Laboratory in addition to Polygraph. Also among them, 6% have used BEOS from DFS Gujarat, additionally. None of them have used Layered Voice Analysis Test.

Only in very serious and stake cases in which there is no direct evidence and investigating officer feels that by going for the tests he may get a lead in the investigation they go for these tests. It is the investigating officer himself decide to go for the test after he gets consent from the subject. Usually the officers of the higher rank also are informed as to the conduct of the test. Thus it may be concluded that the investigating officers do not use their discretionary powers arbitrarily.

The empirical study revealed that tests have helped the investigating officers in collection of evidence by exonerating the innocent, in getting a lead in the investigation and making the case foolproof. Sample respondents who have not resorted to Forensic Psychological Tests have stated that as they did not get any opportunity to conduct these tests, they have not resorted to it. It is also found that they would resort to the tests once they get opportunity for the same.

It is also found that *Selvi* decision has restricted the power of investigating officers in the collection of evidence.100% of the sample respondents have also opined that the subjects are wilfully refusing their consent to undergo the tests after *Selvi* decision and that the judiciary has become more cautious in giving sanction to conduct these tests after the decision. It is also found that additional safeguards are taken after *Selvi* decision to ensure the health of the subjects by the investigating officers.

100% Investigating officers opined that the tests must be used as investigative aid and 75% of them opined that the tests may be used as corroborative evidence. The investigating officers strongly feel that banning of the tests would adversely affect their investigative efforts.

The study also revealed that, it is the investigating officer who decides as to the need for conducting Forensic Psychological Tests. But their higher up's also come to know about this. After getting consent and court order, the request is send to the forensic science laboratory which fixes date for meeting with Investigating officer. The forensic psychologist prepares questions in consultation with investigating officer. Police will not be present during the time of test. Forensic Science Laboratories conducts test on priority basis. The whole procedure is usually completed within two weeks to one and half months. So there is not much delay in conducting the tests. It is also found that in-service training has helped the investigating officers to improve their skills. The study also revealed that there must be more coordination between scientists, investigating officers and persons in the legal field to improve scientific investigation.

Thus it may be concluded Forensic Psychological Tests are useful investigative aid to get lead in the investigation and also to exonerate the innocent. The test results may be used as corroborative evidence, if proper safeguards are in place. The police officers are not arbitrarily using their discretion to conduct the tests and the tests are conducted only as last resort.

## 8.7 Empirical Study II

The researcher has also met the persons who were subjected to Forensic Psychological Tests and personally interviewed them.[159] The object of interviewing the persons who were subjected to Forensic Psychological Tests like Polygraph, Brain Electrical Oscillation Signature Profiling Test (BEOS), Narco Analysis and Layered Voice Analysis was to ascertain whether they have given free consent for conducting the tests, what are the safeguards taken before and after and while undergoing the tests and also to ascertain whether the tests were helpful in proving their innocence. As some of the cases are still pending, the identity of these persons and the case numbers could not be disclosed. The persons are given numbers. However nature of their charge, their age and health conditions and job description

159 . The researcher also interviewed the persons who had undergone Forensic Psychological Tests. The details as to the study is given in Appendix IX.

are provided. The information was collected personally by the researcher with the help of their Advocates. The common questions asked and the information given by them are provided in the appendix IX.

**No. Of subjects interviewed**: 15. But only 10 persons responded properly and gave sufficient details.

### *8.7.1 Interpretation and Findings based on Empirical Study II*

10 persons who had undergone the tests responded properly to the questions. The Charges against them were mainly murder. The cases were being investigated by Police and CBI. Other charges were serious theft and fraud cases. All of them have undergone Polygraph Examination. One person had undergone Narco Analysis in Bangalore Laboratory in 2008.Three of them have undergone BEOS test and Polygraph Test in DFS Gujarat. Two of them have undergone Polygraph Test twice.

The age of the persons ranged from 30 years to 92 years. The analysis of the information revealed that the tests are conducted only with consent. Mostly the accused's give consent to prove their innocence. All of them have undergone Polygraph Test. It is found that laboratory authorities are very cordial to the subjects who take the tests. It is also revealed that the persons do not suffer from any physical or psychological problems due to the administration of the tests. The person who had undergone Narco Analysis Test stated that he had felt heaviness in his head for two days. Presently he does not suffer any physical problem. From the analysis of information, it is found that only procedural defect noticed is absence of lawyer while conducting the test. It is also found that in some cases, the court has also given permission to conduct the tests twice, which is not desirable. The tests must be conducted only once irrespective of the results. The study also revealed that the tests are conducted after taking consent, after ensuring physical and mental fitness and have also helped in exonerating innocent suspects.

## 8.8 Conclusion

Presently there exists no legislation governing Forensic Psychological Tests and regulation of forensic psychology practice is also in a dormant state. Only law in governing Forensic Psychological Tests are the *Selvi* guidelines. But the guidelines are confined to Polygraph, BEOS and Narco Analysis Test. Even *Selvi* is criticised on various legal, Constitutional and ethical grounds. It is also doubtful whether provisions of The Code of Criminal Procedure as to investigative powers of police could be extended with respect to these tests especially in the wake of *Ritesh Sinha* decision. There exist lacunae of law in this regard. This aspect is also pointed out by the apex court in *Selvi*. It is true that as the tests deals with human subjects as such there is more chance of human rights being affected. At the same time increase in crime rate, use of technology in commission of crime, emerging role of victimology in criminal justice system, emergence of research in the field of forensic psychology and neuro science call for scientific orientation of criminal justice system. It is also found that the tests are helpful in exonerating innocent suspects. More over the trend of world countries is also neither *per se* ban nor *per se* admissibility. Hence it may be stated that assimilation of the tests with proper safeguards for ensuring rights of the persons subjected to the tests, would be more appropriate in this scientific era. All these, point to the need for having a comprehensive legislation governing these tests.

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# Chapter - IX
# CONCLUSIONS AND SUGGESTIONS

## 9.1 Conclusion of the Study

The immediate aim of criminal justice system is to reduce crime rate in the society by ensuring maximum detection of crimes and prosecution of offenders so as to meet the ends of justice. In today's world, where crime have increased in numbers and in varied forms and are committed even without leaving trace evidence, this could be achieved only by scientific orientation of criminal justice system. Thus assimilation of forensic science techniques, especially Forensic Psychological Tests in the criminal justice system have become inevitable. However these tests are criticised for their adverse impact on human rights, especially that of the accused. Though several human rights of the accused may be affected by the assimilation of these tests, the right against self-incrimination and right to fair trial of the accused are analysed because of their paramount importance. Hence study was made with special emphasis on impact of Forensic Psychological Tests on the right against self-incrimination and right to fair trial of the accused.

It may be stated that, the emergence of Forensic Psychological Tests was actually proposed against the cruel and inhuman modes of punishments and harsh treatments in criminal justice system associated with the demonological thinking that was prevalent prior to Seventeenth Century. Though all these tests are designated as Forensic Psychological Tests, the degree of physical invasiveness varies with the nature of the tests. Since mid-Nineteen Nineties most of these tests are extensively used in different countries in various settings civil and criminal. USA makes the widest use of Polygraph Test. Some countries like South Africa, Canada, Poland, Japan and some state jurisdictions in USA admit them as evidence under certain circumstances. In those countries in which the test results are admitted as evidence in trial, the administration, expertise and training of the experts are far more advanced than in India.

The study also revealed the requirement for more research and validation studies as to these tests. Government funding is provided in countries like USA in neuroscience projects. The analysis of foreign position has revealed that both common law and civil law countries admit the test results. It is also found that most of the countries are parties to most of the international conventions and hence bound by the human rights standards provided therein which is applicable with respect to their criminal justice process. Thus it may be stated that, minimum guarantees as to fair trial is guaranteed in the criminal law in all the countries in the world, irrespective of whether they follow accusatorial or inquisitorial system. So India may take lessons from the countries wherein the tests are used in criminal justice settings irrespective of whether they follow accusatorial or inquisitorial system.

Regarding the status of Forensic Psychological Tests in India, based on information obtained by filing application under Right To Information Act, 2005, it is found that, out of 38 Laboratories, only 14 laboratories in India have Forensic Psychology Division. In Central Forensic Science Laboratory, Central Bureau of Investigation, Delhi and in State laboratories, the Forensic Psychology division functions well. It is also found that the laboratories conducts the tests only based on court order and never conducts the tests at the request of private parties. The study also revealed that the cases referred for these tests shows an increasing trend in recent years.

Regarding the safeguards taken while conducting the tests, the only procedural defect noticed, is the absence of lawyer when the tests are conducted. It is found that the laboratories are not particularly insisting this safeguard. It is also found that all the laboratories take written consent before conducting the tests and the tests are not conducted if the subject is not giving consent.

Before the conduct of the tests, Physical and mental fitness of the subjects are assured. All the safeguards are taken as per the Procedure Manual provided for the respective tests. For Narco Analysis, all medical facilities are provided as per the medical requirements. It is found that, all laboratories take safeguards as per *Selvi* requirements and National Human Rights Commission guidelines. Regarding video

graphing the procedure, though Narco Analysis is mandatorily video graphed, as far as Polygraph is concerned; only three laboratories video graphs the entire procedure. It is also found that delay and pendency of cases is presently not a serious issue as far as Forensic Psychological Tests are concerned.

It is revealed that the minimum qualification of a Forensic Psychologist is post-graduation in psychology. The experience of the examiners ranges from 1 year to 25 years. Most laboratories have two psychologists in the division. The study also revealed that there is requirement for more psychologists in some laboratories. It is found that the examiners who conduct Forensic Psychological Tests are qualified and competent.

The study revealed that there is lack of proper administration of forensic science as such in our country. Though Forensic Science Development Authority is established; it has control only over Central Forensic Science Laboratories. There is also no system of feedback mechanism in Forensic science service in the country. There is also lack of regulation of forensic psychology practice in the country.

However, it is also found that the research in Forensic Psychological Tests is emerging in the countries in the world. After 9/11, most of the countries have shown a rethinking as to the use of the tests especially in terrorism related issues.[1] However the impact of these tests on the human rights of the accused cannot be overlooked, especially in the light of emergence of new tests and as human subjects are directly involved in the conduct of these tests. Though several human rights of the accused may be affected by the assimilation of the tests, right against self-incrimination and right to fair trial of the accused are of paramount importance.

Regarding the right against self-incrimination, when the common law position is analysed, it is found that, in USA one of the main issues raised against Polygraph admissibility is its violation of right against self-incrimination. The right to silence is

1. Lawrence Liang, " … And Nothing but the Truth, So Help Me Science," in Monica Narula *et. al.* (Eds.), *Sarai Reader-Frontiers*, Centre for the Study of Development Studies, Delhi, (October 10, 2007), pp100-110 at p.100, available at http://www.sarai.net/publications/readers/07-frontiers/100-110-lawrence.pdf (accessed on 11/5/ 2013).

of wider ambit in US law. However, the recent trend of judiciary is to carve out limitations to this right. Regarding interpretation of testimony also the US courts and scholars have adopted different approaches. In Canada, UK and Australia Forensic Psychological Tests are not disallowed on the ground of infringement of right against self-incrimination but on reliability and admissibility grounds. It is also found that right against self-incrimination in these countries is only a limited right.

When position under European Convention on Human Rights is analysed, the right though not expressly provided, is impliedly read into the right to fair trial by European Court of Human rights. Regarding the type of evidence to be protected under right to silence under European Convention on Human Rights, analysis of Strasbourg court decisions reveal that it stress on the evidence which depend "on the will of the defendant." The approach of Strasbourg Court regarding right to silence seems to be more qualified in nature. In order to determine there is violation of the privilege, the court considers various factors like nature and degree of compulsion used to obtain the evidence, weight of the public interest involved in the investigation and punishment of the offence, the existence of relevant procedural safeguards and the use to which the material so obtained is put. When Forensic Psychological Tests are analysed in this perspective, it could be seen that administration of these tests satisfies all the conditions like public interest requirement, existence of procedural safeguards etc. Hence the tests may not affect right to silence under Strasbourg court jurisprudence.

Right against self-incrimination in India is protected under Article 20(3) of the Constitution, The Code of Criminal Procedure, 1973 and The Indian Evidence Act, 1872. When Forensic Psychological Tests are analyzed in the light of this right, it could be found that there is no compulsion involved in the case of administration of Forensic Psychological Tests. It may be stated that even if the tests like Polygraph, Brain Electrical Oscillation Signature Profiling Test, and Layered Voice Analysis Test are conducted without consent; there won't be any violation of constitutional right against self-incrimination. Only in the case of Narco Analysis, wherein anaesthetic procedure is involved, requirement of consent may be made mandatory. The study also revealed that the direct use of the results of the Forensic

Psychological Tests in certain circumstances are still not self-incriminatory. It is also found that the results of the tests and also the process of administration of the test do not reveal anything more than what was already known by the investigators. Hence the contents so obtained may be regarded as foregone conclusion and as such no constitutional rights would be involved. It may be stated that involuntary administration of the tests does not amount to testimonial compulsion. So the investigative use of Forensic Psychological Tests does not violate right against self-incrimination.

It is found that Cognition based theory upon which the Supreme Court in *Selv*i relied for its conclusion is not in conformity with its earlier decisions, which is rendered by larger benches. Moreover the attitude revealed by the court in impliedly adopting volition test by reiterating and adopting the guidelines laid down by National Human Rights Commission on one hand, at the same time holding the tests as unconstitutional by relying on substantive based test on the other hand is self-contradictory. Thus it may be stated that theoretical basis on which court made its decision in *Selvi*, requires reconsideration.

It has also come in evidence that right against self-incrimination does not protect personal sovereignty over the contents of mind or any form of curtailment of volitional control. The Government may invade the sovereignty of the contents of one's mind or curtail volitional control, for example when Government grants someone immunity or wants the content of one's mind that would incriminate a third party. It is also important that society must avail the benefit of scientific progress using psychological knowledge, if these developments help in criminal justice administration. More and more research is also emerging in the area of forensic psychology and researchers are developing more reliable and non-invasive procedures for the proper detection and investigation of crime. The right to avail the benefit of scientific progress is also a human right. Hence, it is not proper on the part of courts to shut the doors towards scientific investigation, which would be beneficial not only to the victim and public at large, but even to the accused. Hence judiciary must rise to the occasion to assimilate scientific tests in interpreting the concept of testimony in self-incrimination clause. Hence it is proposed that interpretation of

right against self-incrimination must be based on communication based view of testimony.

The case laws on right against self-incrimination right from *Schmerber*[2] which based its conclusion on the distinction between suspect is being compelled to serve as evidence and suspect being compelled to disclose or communicate information or facts leading to the conclusion of incriminating evidence, had actually asserted communication based view of testimony. In fact, real evidence or physical evidence is nothing but suspect being compelled to serve as evidence and testimonial evidence is suspect being compelled to disclose or communicate information. Thus, all these case laws by making distinction between real and testimonial evidence is actually applying communication based view of testimony.

The interpretation of right against self-incrimination based on communication based view of testimony is more apt in the present era, where scientific innovations based on Forensic Psychological Tests are upcoming. As per this interpretation, salient variable is presence or absence of communication. Even verbal answers are not precluded, if it is merely mechanical. Similarly, observation only psychiatric tests are also not proscribed as per the privilege. Just because mental states are revealed by the evidence, it will not *ispo facto* render the evidence testimonial.

If communication based view of interpretation of right against self-incrimination is applied, then the pertinent question must be whether a particular Forensic Psychological Test requires the subject himself to disclose his mental attitude? This implies that, only if the suspect is required to offer his mental state for recording of evidence, it would amount to self-incrimination, otherwise not. So the test must be whether the piece of evidence is either produced by communicative act or not. Testimony must be construed as process based. Moreover, if testimony refers to act of communication required to produce evidence, then there won't be any middle case like testimonial like i.e. it would be an alloy composed of multiple parts, some of which are testimonial and others are physical. In that case, there would be

2 . *Schmerber* v. *California,* 384 U.S. 757 (1966).

only physical evidence and testimonial evidence. Hence the theory based on communication based view of testimony seems more sound. Communication based view has also found support of scholarly opinions and both Indian and foreign case laws. If instead of adopting communication based view, substantive based view is applied in interpreting self-incrimination clause, it would result in inconsistent results, which may be detrimental to the rights of the accused also.

It may thus be stated that the interpretation of right against self-incrimination must be based on communication based view of testimony, which would accommodate both human rights of the accused and scientific tests based on psychological knowledge. Therefore new Test which Suggested is that, to constitute violation of right against self-incrimination, the tests are:

(i) Whether the evidence is testimonial in nature? and

(ii) Even if it is testimonial**,** whether it creates evidence either novel or unknown, that the investigators could not otherwise lawfully obtain?

In order to be testimonial, communication must stem from an intentional act, on the suspect's part that discloses information about his mental state. Only if the answers to both the questions are in affirmative, there would be violation of right against self-incrimination.

If this definition is accepted, whether a Forensic Psychological Test is constitutional or not, will be contextual and technology specific. If this definition is taken, then investigative use of Forensic Psychological Tests like Polygraph, Brain Electrical Oscillation Signature Profiling Test, Layered Voice Analysis and Narco Analysis cannot *per se* be considered as violative of Article 20(3).

However regarding Narco Analysis, it may be stated that, as it is an invasive procedure, only with consent of the accused, the test must be done. With respect to other tests even if the tests are done without consent, there is no violation of right against self-incrimination. It is also important to note that the recent trend of judiciary is to treat physical measures which may evoke testimonial responses as not

violative of self-incrimination clause.[3] It may be stated that important safeguards like presence of counsel etc. must be ensured while conducting the tests.

When Forensic Psychological Tests are analysed in the light of right to fair trial of the accused, it may be stated that fair trial encompasses in itself all rights of the accused from the stage of arrest till execution of sentence. However, the study is confined to evidentiary aspects, as one of the main issues with respect to Forensic Psychological Tests is with respect to its admissibility as evidence in trial. The object of admissibility tests itself is to interpret and apply the rights of the accused. Evaluation of admission and exclusion of evidence plays an important part in determining how balance has to be struck between the admissibility of evidence and protecting the rights of the accused. It is found that the legal system of all the common law countries have their own admissibility criteria to evaluate the evidentiary value of any scientific evidence which is applicable in the case of Forensic Psychological evidence also. In India corroboration is the only requirement for admissibility of any scientific evidence including Forensic Psychological evidence. The object of these admissibility standards is to exclude Forensic evidence unless it rests on scientifically valid principles and methodology and thus protect the rights of innocent accused.

The analysis of case laws regarding admissibility of all the Forensic Psychological Tests in all the countries reveal that, the case laws mostly pertain to Polygraph evidence. Judicial skepticism regarding all these tests in all the countries is mainly on the grounds of reliability and violation of exclusionary rules. The courts in Canada and Australia do not admit the test results. Only courts in USA and India admit the test results. In USA, regarding Polygraph admissibility, courts in state jurisdictions adopt three divergent views, (i) *per se* inadmissibility,(ii) admissibility by stipulation and (iii)*per se* admissibility. Narco Analysis is generally held inadmissible. Though evidence based on Functional Magnetic Resonance Imaging

3. *Virginia* v. *Baust*, No. CR14-1439, 2014 WL 6709960, at p.3 (Va. Cir. Ct. Oct.28, 2014), available at https://consumermediallc.files.wordpress.com/2014/11/245515028-fingerprint-unlock-ruling.pdf (accessed on 26/10/2017).

Test and Brain Fingerprinting are presently held as inadmissible, the courts themselves have expressed the possibility of their allowance in future. The evidentiary value of the tests is analyzed in the light of *Daubert*[4] criterion and amended Federal Rules of Evidence. In India, the test results are admitted in favour of prosecution for the limited purpose in accordance with Section 27 of The Indian Evidence Act.

The analysis of case laws regarding all the Forensic Psychological tests in all the countries also reveal that the courts do not make any distinction between favourable and unfavourable test results while determining admissibility of evidence. The legal standards governing admissibility has its objective to ensure fair trial rights of the accused. But when a favourable test result is rejected on these grounds, it may do more injustice to the accused than doing justice. It may affect his valuable right to present defense, if that evidence is the only one in his favour. The analysis of case laws in US jurisdictions wherein the test results are mostly admitted, it is found that if proper safeguards like stipulation, regulation, presence of lawyer, qualified experts are ensured, the courts are willingly accepting the test results. All the countries have a unanimous positive attitude as to the utility of these tests as investigative aid and their only difference of opinion are regarding their admissibility in trial. The academic opinion in all the countries are also in favour of admitting the tests results, especially in the light of abolition of some of the exclusionary rules like ultimate issue rules in countries like Canada, Australia etc. Hence assimilation of non invasive Forensic Psychological Tests with proper regulation and safeguards would ensure human rights of the accused than *per se* inadmissibility of the test results. Regarding invasive Tests like Narco Analysis, its investigatory use may be permitted with proper safeguards like informed consent, presence of lawyer, video graphing entire procedure etc.

The study also revealed that with respect to evaluation of Forensic Psychological evidence, *Daubert* test as such need not be applied. Though object of *Daubert* criteria is to promote the human rights of the accused, the research studies and scholarly view reveal that it does not achieve that objective. Moreover,

4. *Daubert* v. *Merrell Dow Pharmaceuticals*, 509 U.S. 579 (1993).

Psychological Tests must not be considered at par with other tests based on dead materials. Hence strict application of *Daubert* criteria for admissibility of Forensic Psychological evidence is not desirable. Therefore, corroboration must be made as the only requirement and admissibility of these tests is to be determined on case by case basis. Invasive tests like Narco Analysis must be used only as investigative aid.

When evidentiary barriers impeding with fact finding process is analysed in the light of Forensic Psychological Tests, it is found that non invasive tests do not violate the exclusionary rules like rule against oath helping, past inconsistent statements, hearsay etc. But as far as Narco Analysis is concerned, it is found that whether the test violates the rules, cannot be determined *a priori* and could be decided only on case by case basis. Exclusionary rules were developed against the background of a criminal justice system which was radically different from what we have in this modern era. In those days accused had no right to fair trial. It was developed at a time in which there was no professional police force, prosecution, no right to bail or right to counsel or right to defence or right to appeal and capital punishment was mandatory rule for several offences. Hence in those times exclusionary rules were inevitable to protect the rights of the accused. However in this modern era, criminal justice administration is governed by human rights principles, and police, prosecution and defense lawyering has become scientific and professionalized. Hence *per se* exclusion of Forensic Psychological evidence which may be relevant to the determination of guilt or innocence may do more injustice than rendering justice.

As to exclusion of evidence based on evidence extraneous to fact finding process, the analysis of common law position in USA, New Zealand and Canada reveal that though exclusionary power of the courts are constitutionally or statutorily provided, courts engage in balancing exercise and admits such evidence after considering various factors. In some jurisdictions judiciary has carved out exceptions to exclusionary rule. When Indian position is analysed, it is found that presently the issue as to illegally obtained evidence is governed by Indian Evidence Act. Accordingly, the only test for the admissibility of evidence is relevance test. Thus the Indian courts have residual power in admitting evidence even obtained through

illegal means on a balance of considerations. When case laws on Forensic Psychological Tests of the common law countries and India, are analysed in this contest, it is found that results of the tests are excluded as being violative of right against torture or other ill treatment and mental privacy.

At this juncture, it is pertinent to note that Forensic Psychological Tests are not *per se* banned in India. Analysis of the tests in the light of The International Covenant on Civil and Political Rights,1966 and The Convention Against Torture and Other Cruel, Inhuman and Degrading Treatment and Punishment,1984, revealed that the investigative use of the tests are not *per se* violative of right against torture or other ill treatment. It is also found that the concept of mental privacy is only an aspect of procedural protection and hence do not have substantive protection. Therefore it could also be subjected to restrictions on the grounds of public interest. Hence it may be stated that admissibility of the results obtained from non-invasive Forensic Psychological Tests, if safeguards are strictly followed must be decided on case by case basis. Regarding Narco Analysis, as it is an invasive test, its investigative use does not violate right against torture and ill treatment and mental privacy. However The Narco Analysis test being an invasive procedure, its results may not be used as evidence in trial.

It is true that evidence based on Forensic Psychological Tests suffer from many disparities. But that is not confined to these tests alone. When we analyze scientific evidence based on forensic science it could be seen that, the forensic science disciplines exhibit a wide variety with regard to methodologies, techniques used, reliability, error rate and general acceptability. Some disciplines are laboratory based,[5] whereas some are based on expert interpretation like bite marks, finger prints etc. In fact, Forensic Psychological Tests come under the latter category. Though analytically based disciplines may have an edge over those forensic science evidence based on expert interpretation, it is not possible to assume that scientifc evidence in all fields have high accuracy.[6] There are significant variations among the disciplines

5 . Toxicology, Drug Analysis DNA Analysis etc.

6 . The Committee on Identifying the Needs of the Forensic Sciences Community, *Strengthening Forensic Science in the United States: A Path Forward*, National Research Council, August 2009, p.7, available at https://www.ncjrs.gov/pdffiles1/nij/grants/228091.pdf (accessed on

and within the disciplines. This is one of the important issues and major problem in the forensic science community.

The simple reality is that the "interpretation of forensic evidence is not always based on scientific studies to determine its validity."[7] Though research may have been done in some disciplines, there is immense shortage of peer reviewed, published studies establishing validity and scientific basis of many forensic sceinces.[8] It may also happen that some forensic science disciplines which may have been considered as exact scinece may later raise doubts as to its reliability. For instance, for nearly a century, finger print identifications had been viewed as exact science and as a valid tool in linking a suspect with a crime. Finger print examiners had been comparing partial latent finger prints found at crime scenes to inked finger prints taken directly from the suspects. Recently suggestions are made that latent finger print identifications may not be as reliable as it was previously assumed.[9] Similarly, if we take the case of bite marks, tool marks etc., it could be seen that most of these techniques were developed in crime laboratories to aid in the investigation. Research as to their scientific foundation or limitation was never a top priority.[10] These tests are applied because the practioners in this field work hard to improve their methodology and that the results from other evidence have been combined with these tests which gave confidence to the scientists as to their probative value.[11] In fact, with the exception of nuclear DNA analysis, no other forensic science technique has shown accuracy with certainity and consistency.[12] In short, it may be stated that interpretataion of forensic evidence is not infallibale.[13]

Similarly, Subjective bias and errors [14] are also not confined to Forensic Psychological Tests. In any field, the findings of forensic experts are vulnerable to

05/09/2017).Even among the disciplines based on expert interpretation, there are important variations.

7. *id.* at p.8.
8. *ibid*.
9. *id*. at p.43.
10. *id*. at p.42.
11. *ibid.*
12. *ibid.* Even when DNA in forensic science was first offered as evidence no concerted efforts were made to test the reliability of the test and law enforcement officials believed in the scientist's ability to withstand cross examination in court as sufficient to demonstrate the reliability of the test.
13. *id.* at p. 87.
14. There is dispute even among scientists as to what constitute error. Regarding bias, it may be stated that no forensic science discipline is spared of it. Cognitive bias due to willingness to ignore base rate information or tendency for conclusions to be affected by how the question is

contextaul and cognitive bias.[15] Even competent experts may make unintentional errors.[16] In fact, false sense of significance attached to scientific evidence, bias, incompetence and lack of internal controls for the scientific evidence presented in trial are not confined to Forensic Psychological Tests alone, but are genarlly applicable to all branches of forensic science.[17]

It is also to be noted that just because these tests are severely criticized, it does not mean that they should be banned or discarded.[18] Even in *Selvi*, the Supreme Court did not hold that the tests are scientifically invalid.[19] In fact, when considering ordinary interpretative procedures, these tests are less subjective in nature.[20] Not only, now police is frequently using these tests and new tests like Layered Voice Analysis, Suspect Detection System are also emerging. After 9/11, the world has witnessed the emergence and re-emergence of these tests.[21] It is stated that these technologies have very much importance in the fight against terrorism.[22]

It is stated that the use of these tests would reduce police using torture and third degrees methods.[23] These tests are also better than the deceptive practices presently employed by the police in getting confessions.[24] It is even stated that use of more scientific techniques by the police would result in increased self respect and a

framed or how the data are presented or due to common imperfection in our reasoning ability etc. are common for all forensic science disciplines. Contextual bias is also common in all forensic science disciplines. For instance when an instruction has been given to the examiners that the suspect has confessed the crime, a research study has shown that all the finger print examiners gave the report that the sample matches with the source. So what is required is that serious efforts must be made in mitigating this problem and initiatives must be taken to make scientific investigations as objective as possible.*id.* at p.47.

15. *ibid.*
16. *ibid.*
17. Errors due to laxity of standards of laboratories, lack of quality control measures, lack of training and education of forensic scientists are common to all forensic disciplines. Innocence project of 2008 had documented instances of both intentional and unintentional errors that have led to wrongful convictions. For instance in forensic reports, falsified results may be given and misinterpretation of evidence may be there. In the court room, there may be suppression of exculpatory evidence; providing statistical exaggeration of the results of the test and providing false testimony about the test results may also happen. See *id.* at p.37.
18. Jerome H. Skolnick., "Scientific Theory and Scientific Evidence: An Analysis of Lie-Detection," Vol. 70(5), The Yale Law Journal, 1961, pp.694-728 at p.721.
19. Anusree.A, "Forensic Psychology Tests in Criminal Investigation: Need for a Comprehensive Legislation," Vol.1 (3), International Journal for Research in Law, April 2016, pp.174-193 at p.190.
20. *ibid.*
21. *supra* n. 1.
22. *ibid.*
23. *supra* n. 18 at p.724. See also, *supra* n. 19.
24. *ibid.*

heightened feeling of professionalism in police department which in fact would result in reluctance to resort to violence which is considered as "characteristic of lower social class."[25] Apart from that, it is also stated that these tests also have as one of its important objectives to exonerate the innocent.[26] It is noteworthy that none of the commissions or committees which have studied about these tests has recommended for its abolition.[27] They have only recommended for regulation of these tests. At this juncture, it is also important to note that, even *Selvi*[28] decision has also not prohibited the tests as such and has left the room for conditional application of the tests for the purpose of criminal justice administration.

It is also important to note that, increase in crime rate, use of technology in commission of crime, emerging role of victimology in criminal justice system, emergence of research in the field of Forensic Psychology and neuro science[29] call for scientific orientation of criminal justice system. Moreover, the trend of different countries in the world, is also neither *per se* ban nor *per se* admissibility of these tests. The study has revealed that Forensic Psychological Tests must earn its admission in court. But it is also important to note that most of the tests are in the stage of infancy. At the same time, these tests are also not shown as totally invalid and untrustworthy. The courts in most countries are trying to balance the principles of opinion evidence, hearsay evidence, and right of the accused and public to access to benefits of latest scientific advancements. The courts also try to balance accused's right against self-incrimination and right to fair trial and also public's right to have efficient investigation and prosecution of offenders. It is also important to note that

25. *ibid.*
26. The empirical study conducted by the researcher also confirmed this. The researcher has conducted a survey among investigating officers and also had interviewed the accused who were subjected to these tests.
27. *supra* n. 19 at p.192.
28. *Selvi* v. *State of Karnataka*, (2010) 7 S.C.C. 263.
29. Research projects are emerging in Neuro Imaging Techniques which had witnessed investments from various foundations and Government agencies. The John D. and Catherine T. MacArthur Foundation has invested $10 million in 2007 to start a Law and Neuroscience Project in USA. In 2011 the Foundation renewed its commitment with a $4.85 million grant to sustain the Research Network on Law and Neuroscience. These institutional commitments not only foster dialogue and research, but also send a strong signal that this is a field of great possibility. An additional technology to read brain function, namely Functional Near Infra Red Imaging is also being explored. See, Francis X. Shen, "Neuroscience, Mental Privacy, and the Law," Vol. 36(2), Harvard Journal of Law and Public Policy, 2013, pp.654-713 at p.661.

accused 's right to presumption of innocence , self-incrimination and right to fair trial and right to legal advice also entitle him to voluntarily submit to these tests. In these circumstances, assimilation of the tests in the criminal justice system with proper safeguards is the most appropriate one. Moreover, the rules of evidence also changes with time and it has taken place in many common law countries including England. Hence in India also legal reforms must take place keeping in pace with the needs of the society.

The study has revealed that presently there exists no legislation in India, governing Forensic Psychological Tests. The regulation of forensic psychology practice in the country, is also in a dormant state. Only law governing the Forensic Psychological Tests are the guidelines in *Selvi*. But the guidelines are confined to Polygraph, BEOS and Narco Analysis Tests. It is also submitted that even *Selvi* is criticised on various legal, constitutional and ethical grounds. It is also doubtful whether provisions of The Code of Criminal Procedure dealing with investigative powers of police could be extended with respect to these tests especially in the wake of *Ritesh Sinha* decision.[30] Hence there exist lacunae of law in this regard.

Since most of the human rights are involved while administering the tests, the law regulating Forensic Psychological Tests must be both foreseeable and accessible. Foreseeability requires that for the law to have the quality of law, it must have sufficient clarity as to the circumstances in which and also the authority by which the power has to be exercised. Accessibility requires that it must provide adequate safeguards to prevent abuse and misuse. Presently only the accessibility requirement is satisfied as far as Forensic Psychological Tests are concerned. Even with that, it is doubtful, whether the guidelines are applicable with respect to tests other than Polygraph, Brain Electrical Oscillation Signature Profiling Test and Narco Analysis Test. Hence, there is an urgent need for a comprehensive legislation governing the administration of the Tests. It is important that the prerogative of the person to be subjected to these tests should not be left to the discretion of the

30. *Ritesh Sinha* v. *State of U.P.*, (2013) 2 S.C.C. 357.

executive[31] and hence it should have the backing of law for not being declared as unconstitutional. .

It is true that in the absence of specific legislation, governing admissibility of Forensic Psychological Tests, the rules of evidence would provide proper guidelines as to the admissibility of the tests. If the results based on the tests are admitted without proper safeguards, it may unduly interfere with rights of the defendants. At the same time excluding such test may unduly interfere with law enforcement as most of the tests are found to be invaluable investigative tool. It is submitted that both *per se* exclusion and unrestricted admission may result in injustice. It is also found that, *Selvi* has made a disparity in favour of prosecution by allowing the test results to be admitted in evidence for the purpose of Section 27 of Indian Evidence Act. In fact, the accused is also entitled to the benefit of the test. If the evidence is in favour, he must be able to use that evidence so as to present his defence in an efficient manner. Hence expert evidence has to be evaluated in a contextual [32]and principled manner[33] that is reactive[34] to developments in science.[35] This implies that

31. Monika Garg, "The Concept of Narco Analysis in View of Constitutional Law and Human Rights," Vol. 1, International journal of Multidisciplinary Educational Research, June 2012, pp.158-167 at p.164, In *Ram Jawayya Kupur* v. *State of Punjab*, A.I.R. 1955 S.C. 549, the court had held that executive power could not infringe upon the constitutional rights and liberty of the citizens and in the absence of law, the intrusion upon fundamental rights would be considered as unconstitutional. The use of the tests by law enforcement officials could also be considered as the exercise of executive power and comes under general investigative powers.
32. Contextual implies that admissibility must be evaluated based on the nature of the proceedings whether civil or criminal or jury trial or trial before judge; the purpose for which it is tendered like whether it is to assess liability, to prove an element of an offence etc; the availability of safeguards to limit the potential prejudice like notice, adversarial experts, effective cross examination etc; and who has tendered evidence like state or accused. See, Jared Craig and David Wachowich, "Neuroscience as Expert Evidence in Canadian Courts," (Paper Presented at Legal Education Society of Alberta , University of Calgary, Alberta, 16 March, 2014), pp.1-33 at p.14,available at https://phil.ucalgary.ca/ma nageprofile//sites/phil. ucalgary.ca.mana geprofile files/ unitis/publications/1-5564087/Jared_ Craig_David_ Wachowich_ Neuroscience_ as_Expert_Evidence_in_Canadian_Court.pdf (accessed on 08/11/2017).
33. In criminal law context, rights of the accused are always weighed against the interest of the state. The test is dependent on the idea of heightened concern of the contemporary society regarding devastating injustice in wrongful conviction and general disgust against punishing innocent. This means that court must allow greater leniency in assessing evidence provided by the accused to facilitate full exercise of the constitutional right to defence, only excluding that evidence where its probative value is substantially outweighed by its prejudicial effect. But prosecution evidence is to be scrutinised with increased rigor, especially where such evidence speaks to ultimate issue.*id.* at pp.14-15.
34 . Is *reactive to developments in science*, is a general principle of evidence that all probative evidence should be admissible, absent a clear basis in law or policy to exclude it. *ibid.*

all probative evidence must be admitted unless there is a law or policy excluding it. Hence a case by case approach with discernable trend towards admissibility of Forensic Psychological evidence must be the attitude of the courts. Hence all non-invasive Forensic Psychological Tests may be admitted as corroborative evidence if other independent evidence are in place so that the interests of the accused as well as the interest of the state in seeking just verdict is adequately protected.

Invasive Tests like Narco Analysis may be used only as an investigatory tool, as none of the validation studies so far made has recommended the forensic use of this Test. It requires further elegant, in-depth and continuous research to confirm the reliability of the test results and the universal acceptance of the test in introducing it before the justice dispensing system in our country. Till such time, the results of the test may be used only as investigative aid. A comprehensive law governing these tests with specific legitimate purpose accompanied by adequate safeguards to the accused and remedies if rights are infringed is the urgent need of the hour.

## 9.2 Suggestions

The noninvasive tests may be conducted only with respect to offences punishable with more than 2 years imprisonment and also with fine. Invasive tests may be conducted only with respect to offences punishable with morethan 10 years imprisonment or life imprisonment or death penalty or offenses affecting women and children. Consent of the subject need not be insisted in the case of administration of non-invasive tests. With respect to invasive Tests like Narco Analysis, only after getting informed consent from the subject, the test may be conducted. Narco Analysis Test be conducted only in hospitals or in institutions, where the conditions as required by Indian Society of Anesthetists are ensured. Along with the final report an affidavit as to the satisfaction of the requirements in this regard must also be given by the Director of Forensic Science Laboratory. All the tests are to be conducted only after getting court order. In criminal investigation settings, Forensic Psychological Tests may be used as investigative aid and at trial stage the tests other than Narco

35 . *id.* at p.16. This approach may not be confined to Canadian courts. It should be made equally applicable to other courts in different jurisdictions while they consider admissibility of scientific evidence.

Analysis and hypnosis may be used as corroborative evidence if proper safeguards are in place, while the tests are conducted. There can be a comprehensive legislation governing Forensic Psychological Tests.

### *9.2.1 Suggestions Based on Information Obtained Through Filing Application Under Right To Information Act*

All forensic science laboratories in India shall have forensic psychology division. In Central Forensic Science Laboratory Pune and Kolkata, the division must be made functional. It is also suggested that the laboratories having forensic psychology division may also start Brain Electrical Oscillation Signature Profiling Test and Layered Voice Analysis Test.

To ensure more reliability and transparency, it must be ensured that lawyer must be present while the tests are conducted. It is also suggested that if the subject is unable to appoint a lawyer, a lawyer must be appointed at the expense of the state. More psychologists may be appointed in the laboratories where it is required. More emphasis must be given to research and training of Forensic psychologists. There is also a need for putting in place a proper feedback mechanism.

### *9.2.2 Suggestions for Amendment in Existing Legislation*

The Code of Criminal Procedure may be amended so as to confer inherent powers upon subordinate criminal courts to make orders in the interest of justice. Section 45 of Indian Evidence Act may be amended to make opinions of Forensic Psychologists as relevant facts. Section 293 of The Code of Criminal Procedure may also be amended to include forensic psychologists as scientific officers. It is also suggested that Explanation A to Section 53 of The Code of Criminal Procedure may be amended to include Psychological Tests also.

### *9.2.3 Suggestions for the Improvement of Forensic Science Service*

Malimath Committee, Menon Committee and another two member committee in 2010, have recommended for the improvement of forensics in the country. It is submitted that these recommendations may be implemented for the improvement of Forensic Science Service.

It is suggested that there should be more networking and coordination between State and Central Forensic Science Laboratories so as to improve their efficiency in knowledge generation and also in their functioning. In many reports which dealt with forensics there was suggestion to the effect that, Forensic Science Laboratories should be declared as "scientific organization," though they may continue under home department. This would ensure conducive scientific atmosphere so that scientists with good talents may be attracted and retained. Apart from performing their traditional forensic science work, they must also cater to the overall scientific and technological needs of criminal justice administration. The viability of adopting this suggestion in Indian scenario may be considered seriously.

Policy initiatives must also be there so as to bring forensic science at the centre of criminal investigation with efficiency and accountability and also in cost effective manner. The Policy decisions must give emphasis to training, accreditation, standard setting and professionalism and also to research and development in forensic science arena. Union and State Governments must take initiatives to improve the infrastructure, manpower and other facilities in Forensic Science Laboratories so that country could have crime laboratories comparable to the best in the world. Central Government must also make sponsorship for collaboration of science and technology for effective criminal justice administration. For this there is a need for bringing criminal justice administration under plan budget allocation. Budgetary allocation must be reviewed to ensure improvement forensics and availability of sufficient funds.

Government must also encourage validation studies of various scientific tests so as to ensure their reliability for acceptability in courts. The validation study on Brain Electrical Oscillation Signature Profiling Test conducted by Technology Information Forecasting and Assessment Council in collaboration with Directorate of Forensic Science Gujarat in 2006-2008 is worth mentioning in this regard. It is suggested that such validation studies may be pursued with respect to other Forensic Psychological Tests. For this purpose public funding initiatives leading to research programmes in Forensic Psychological Tests may be started.

To improve their quality and efficiency, forensic science laboratories must have tie up with other scientific organizations and advanced laboratories of national / international importance. There must be an exchange of knowledge and skill between these organizations. An internal and external quality assurance system must also be established for improving the efficiency of forensic science laboratories. It is high time to introduce mandatory certification of forensic science practitioners in the country. Initiatives must be taken for accreditation of all forensic science laboratories by National Accreditation Board of Testing and Calibration Laboratories. Feedback mechanism must also be there to determine the efficiency and pitfalls of Forensic Science Service. The practice adopted in Tamil Nadu, as stated by the two member committee in their report on 'Forensics' in 2010 is worth mentioning in this regard. In the report it was stated that, Forensic Science Department of Tamil Nadu is unique in the country in this regard. The laboratory gets a copy of the judgment of every case, wherein the report of the forensic science laboratory, has been taken on case file. It is suggested that this practice may be adopted in other forensic science laboratories also. In every case wherein the report of the laboratory is considered by the court, the prosecutor's office may take initiative to send a copy of the judgment to the concerned forensic science laboratory. This would really improve the efficiency of the whole system.

Apart from this, the forensic psychology practice must be regulated. Licensing procedure must be made mandatory. There must be a regulatory body for regulating practice of forensic psychologist which prescribes ethical standards for them and enforce them in the event of their violations. Till such time, the ethical guidelines laid down by Indian Association of Clinical Psychologists (IACP) and National Academy of Psychology (NAOP) may be made applicable to forensic psychologists also. A comprehensive legislation for governing Forensic Science Service which shall have provisions regulating forensic psychology service is the need of the hour.

More emphasis must be given to improve the standards of forensic psychologist, like provisions for continuing education progarmme, training as to keep abreast with current developments, promoting research etc. The institutions like

National Institute of Criminology and Forensic Science, Delhi and Gujarat Forensic Science University in collaboration with Directorate of Forensic Science, Gujarat may take initiatives in this regard. These institutions may also give training to lawyers, judges, police and other investigating agencies so as to give them awareness regarding this branch of forensic science discipline. Forensic Science can be made a subject in legal curriculum, so as to create awareness among lawyers and judges about the advances and utility of this branch of learning in legal field. Initiatives must also be taken to improve co-ordination between police officers, forensic scientists, lawyers and judges in training and operation.

It is also important that forensic science community requires strong governance to adopt and promote long term agenda to strengthen the forensic science disciplines. For this purpose Directorate of Forensic Science Services must be provided with teeth and nail to regulate forensic science service in the nation at large.

### *9.2.4 Suggestions For the Improvement of Investigating Agencies*

1. Steps must be taken to improve the professional competency of investigating officers. More emphasis must be given to training in scientific investigation, psychology and human rights. Hence in service training must be given importance.
2. A liaison between scientific officers and police must be made since the beginning of investigation. More facilities must be provided to the Regional laboratories so as to avoid delay in forensic analysis.
3. As excessive work load is the main problem faced by investigation agencies, Law and Order wing must separate from Investigation Wing. So urgently it must be implemented.
4. Inadequacy of staff, lack of infrastructure etc., are raised as other difficulties faced by the police. Steps must be taken to appoint more staff and also provide more infrastructure facilities.
5. As interrogation is inevitable in any type of crime investigation, the service of psychologist must also be made available in necessary cases. They can help police to decide as to cases in which police may go for Forensic Psychological Tests.

It is suggested that a law governing the Forensic Psychological Tests must also take all these aspects into consideration and the remedial measures for the violation of human rights must also be stipulated, so that the liberty of the citizens are not put in jeopardy.

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# APPENDIX

## Appendix- I

## Copy of RTI Application

To,

The public Information Officer,

State/Central Forensic Science Laboratory

1. Full name : Anusree A

2. Address : Anusree. A, Research scholar, School of legal studies, Cochin University of Science and Technology. Residing at "Sreelakshmi", 49/3E, Balabhadra Devi Temple road, Elamakkara PO, Cochin- 682026, Kerala.
Email: anusree72@gmail.com mob: 9446574254,
ph: 0484-2408148

3. Particulars of the information required:

    1. Information as to whether the laboratory has Forensic psychology division and the year in which the division was established in the laboratory.
    2. If the forensic psychology division was discontinued in the laboratory at any time, the year in which it was discontinued.
    3. The tests that are conducted in the forensic psychology division

4. Year in which following tests were started in the laboratory
    (a) Polygraph
    (b) Narco Analysis
    (c) Brain Electrical Oscillation Signature Profiling Test
    (d) Layered Voice Analysis Test

5. Give the year wise information for the period from 1-1-2007 to 31-12-2015 with respect to the following details.

    (a) The number of polygraph, Brain Electrical Oscillation Signature Profiling Test, Layered Voice Analysis test and Narco Analysis Tests conducted in the Laboratory during the above period.( ie from 1-01-2007 to 31-12-2015)
    (b) The number of Subjects undergone the tests like polygraph, Brain Electrical Oscillation Signature Profiling Test, Layered Voice Analysis test and Narco Analysis Tests during the above mentioned period. ( ie from 1-01-2007 to 31-12-2015)
    (c) Please specify agency which has made the request (Whether police/ CBI etc)

6. Kindly inform whether at any time the laboratory conducted these tests at the request of private parties/ private detective agencies?

7. The approximate time period within which the tests are conducted after the request is made by the investigating agencies to conduct the following tests:
   (a) Polygraph
   (b) BEOS
   (c) Layered Voice Analysis
   (d) Narco Analysis

8. The approximate time period within which report is given, once the test is conducted for the following:
   (a) Polygraph
   (b) BEOS Profiling Test
   (c) Layered Voice Analysis Test
   (d) Narco Analysis Test

9. Persons who prepare the questions addressed to the subject in the following tests.
   (a) Polygraph
   (b) Narco Analysis
   (c) BEOS
   (d) Layered voice analysis

10. Number of days or hours before which the questions are given to the subject before conducting the following tests
   (a) Polygraph
   (b) Narco Analysis
   (c) BEOS
   (d) Layered voice Analysis

11. Persons present while the following tests are conducted
   (a) Polygraph
   (b) Narco Analysis
   (c) BEOS
   (d) Layered Voice Analysis

12. The procedure followed if the subject is not accompanied by a lawyer.

13. Kindly inform whether consent of the subject is taken before conducting tests like Polygraph, BEOS, Narco Analysis and Layered Voice Analysis and kindly specify under which rule/regulation / circular, the consent of the subject is taken and the procedure adopted if the consent is not given by the subject.

14. Details of any restrictions/ guidelines as to number of persons/ subjects on whom the tests will be conducted per day with respect to the following tests:
   (a) Polygraph
   (b) BEOS
   (c) Narco Analysis
   (d) Layered Voice Analysis Test

15. Safeguards taken to ensure that the subject is physically and mentally fit to undergo the following tests:
    (a) Polygraph
    (b) BEOS
    (c) Narco Analysis
    (d) Layered Voice Analysis Test

16. Safeguards taken to ensure the physical and mental health of the subject during the course of conducting the following tests:
    (a) Polygraph
    (b) BEOS
    (c) Narco Analysis
    (d) Layered Voice Analysis Test

17. Additional safeguards taken, if any, other than that laid down by the honourable Supreme Court in *Selvi* v. *State of Karnataka* in (2010) 7 SCC 263, regarding conduct of Forensic Psychology Tests.

18. Kindly inform whether the whole procedure of the tests like Polygraph, BEOS, Narco Analysis and Layered Voice Analysis is video graphed.

19. Number of forensic psychologists in the laboratory, their qualifications and number of years of experience they have in conducting these tests?

20. Details as to any feedback mechanism to ascertain that the results of the tests are effectively used in investigation / prosecution of offenders.

I hereby inform that following formalities have been completed by me:

1. Postal Order worth Rs 10/- is attached with the application form
2. That I am a citizen of India and I am asking information as "citizen".
3. I do not belong to BPL category.
4. I require the information by registered post.

Place : Ernakulam **Anusree. A**

Date :

## Appendix- II : BASIC INFORMATION

| Name of Laboratory | Year in which Forensic Psychology Division established | Whether this div was discontinued and Year in which div was discontinued | Tests Conducted and Year in which test started | | | |
|---|---|---|---|---|---|---|
| | | | Polygraph | BEOS | Narco Analysis | Layered voice analysis |
| **DFSL Mumbai** | 2006, Cases referred from Jan 2007 | No | √ | √ | √ | |
| **SFSL Rajasthan** | No Forensic psychology division - however Polygraph tests were conducted from 1984 to 2004 in Forensic Physics division - Presently no tests are conducted | | | | | |
| **FSL GOVT OF NCT DELHI** | | | √ Forensic Psychological Assessment and Forensic psychological counseling are conducted | | | |
| **SFSL LUCKNOW, UP** | Jan-10 | No | Jan-10 | | 28-08-2014 | 01-04-2016 |
| **SFSL TELUNGANA** | 1998 | | √ | | | |
| **SFSL HARYANA** | 1983-84 | no | √ 1984 | | | |
| **SFSL NAGALAND** | 2005 | 2014 | 2005 | | | |
| | | | | | | |

| | | | | | | |
|---|---|---|---|---|---|---|
| **SFSL Odisha** | Sep-91 | Temporarily discontinued from jan to june 2000 and 10-9-2000 to 23-11-2001 | 1993 | | | |
| **SFSL Thiruvananthapuram** | 2006 | no | 2006 | | | |
| **SFSL Bangalore** | 1999 | 2009-2013 | 1995 | | 2000 test discontinued in 2009 | |
| **CFSL Pune** | June 2011 - no tests conducted so far and no forensic psychologist is available since its inception | | | | | |
| **CFSL Kolkata** | No forensic psychology division exist however polygraph instrument was procured under R and D plan in the year 2012 in the physics division It was used for training / documents purpose for police officer and judiciary | | | | | |
| **CFL CBI NEW DELHI** | 1973 AS LIE detection division | no | 1973 | | | |
| **FSL Manipur** | Did not give information to RTI claiming exepmtion | | | | | |
| **Directorate of Forensic science Gandhi Nagar Gujarat** | Did not give information to RTI claiming exepmtion | | | | | |

**Appendix- III**

## INFORMATION REGARDING SAFEGUARDS

| **Name of Laboratory** | Procedure followed if subject not accompanied by lawyer | Whether consent taken before the tests and regulation followed | Procedure followed if there is no consent | Safeguards taken to ensure subject is physically and mentally fit to undergo the test | Safeguards taken to ensure subject is physically and mentally fit during the course of the test | Additional safe guards taken apart from Directions from *Selvi* case |
|---|---|---|---|---|---|---|
| **DFSL Mumbai** | Tests will be conducted | Consent is taken NHRC guidelines for Polygraph | Test will not be conducted | Physical and Mental fitness checked before the test | Safeguards are taken and during psychological profiling; If subject is under physical or mental treatment for illness, medical certificates are taken 2. If subject is not taking treatment for physically or mental illness, he is referred for treatment: 3. If subject is physically or mentally not fit, no tests are conducted; In Narco Medical tests are required | Safeguards are taken and during psychological profiling; If subject is under physical or mental treatment for illness, medical certificates are taken 2. If subject is not taking treatment for physically or mental illness, he is referred for treatment: 3. If subject is physically or mentally not fit, no tests are conducted; In Narco Medical tests are required |
| **FSL GOVT OF NCT DELHI** | As per guidelines by NHRC and Supreme court direction in *Selvi* | Yes consent of the subject is required before the Judicial magistrate as per direction of Supreme Court | Consent of the subject is required before the Judicial magistrate as per direction of supreme court | Safeguards as per NHRC and Supreme Court direction | Safeguards as per NHRC and Supreme Court direction | Guidelines provided by NHRC |
| **SFSL LUCKNOW, UP** | Narco - lawyer not allowed Polygraph and LVA - not necessary | consent of the subject is compulsory | NO test conducted | Proper physical examination through medical doctor | Narco - use of BIS monitor and pulseoximeter during the procedure Polygraph through physician LVA consent taken physical fitness ensured through doctor | Narco and Polygraph – No |
| **SFSL HARYANA** | Test will be conducted | Yes, according to NHRC guidelines | No test conducted | As per working manual and under required environmental condition | Yes, As per working manual | No additional safeguards |

| | | | | | | |
|---|---|---|---|---|---|---|
| **SFSL NAGALAND** | Does not arise | Yes informed consent form as per the guidelines of NHRC for subjecting the person to the test is presented to the subject for review and append his signature' his willingness to undergo polygraph examinations if no willingness no test conducted | I no consent - no test conducted | observes study of cross examine about the subject physical and mental health during the following mentioned procedure. 1. presentation of facts of the case by I O s. 2. Pre test interview of the subject. 3. Psychological test conducted if any. 4. background information of the subject recorded in a standardized form provided. | During the course of the test the trained officer is seated in a position whereby the subject is in a complete view so as to detect any Physical or Mental discomfort/ willful distraction of the subject. | No |
| **SFSL ODISHA** | No special procedure | written voluntary consent of the subject as per NHRC guidelines, *Selvi* decision and as per work procedure manual prepared by DFS New Delhi | If no consent - no test conducted and IO informed accordingly | Only if the subject is found to be psycho - biologically sound and responsive to polygraph test the test is conducted | Safeguards as per work manual prepared by DFS New Delhi | NO |

| | | | | | | |
|---|---|---|---|---|---|---|
| **SFS L Thiruvananthapuram** | Written consent from the subject regarding the same will be sought | Yes | written consent from the subject will be sought | information regarding physical and mental status will be collected before testing | Not required as being noninvasive test | Nil |
| **SFSL Banglore** | Procedure followed as per the manual issued by MHA Govt of India | Consent as per Manual issued by MHA Govt of India | For Narco -If refusal, it is recorded and submitted to the court For polygraph- it is recorded and submitted to IO and Court | Polygraph - MMSC test will be administered during the first phase of PLG test Narco - cardiologist will give fitness after the evaluation of the detailed medical examination | Polygraph - being non - invasive safeguard during the test is not required Narco - the test is conducted at Operation theatre along with team of Doctors and BIS monitor to evaluate the health condition during the test | For Polygraph - as equipment is under repair - no tests are conducted For Narco - all parameters are monitored continuously during the test. |

# Appendix IV

## Information Given by the Laboratories Regarding Video graphing the Entire Procedure

| Name of the laboratory | Polygraph | | BEOS | | Narco | | LVA | |
|---|---|---|---|---|---|---|---|---|
| | yes | no | Yes | no | yes | no | Yes | No |
| Bombay | | no | | no | yes | | | |
| NCT Delhi | | no | | | | | | |
| SFSL Lucknow | Yes | | | | Yes | | Yes | |
| Nagaland | | no | | | | | | |
| Odisha | Recorded in web cam | | | | | | | |
| Thiruvananthapuram | yes | | | | | | | |
| Bangalore | | | | | yes | | | |
| CBI CFSL Delhi | | no | | | | | | |

# Appendix V-QUALIFICATION AND COMPETENCY OF THE EXAMINERS

| Name of Laboratory | | | |
|---|---|---|---|
| | **Number of Forensic Psychologists** | **Qualification** | **Experience** |
| **DFSL Mumbai** | Scientific Officer -2 ( 1 Permanent and 1 on contract basis) | Post graduate degree in clinical psychology and for the other post graduate degree in psychology | Permanent - 2 yrs. On contract - 1 year |
| **FSL GOVT OF NCT DELHI** | Data not given | | |
| **SFSL LUCKNOW, UP** | 2 | MA psychology | 6 years experience and trained from CFSL CBI Delhi |
| **SFSL HARYANA** | two, | 1. MA psychology (M. Phil)<br>2. MA Applied psychology Bed | 1. 11.5 years 2. 5.5 years |
| **SFSL NAGALAND** | No forensic psychologists**. Test is conducted by a police officer** who is trained in the use of polygraph technique | BA Hons. in psychology from Delhi University. MA in Educations- Nagaland University Certificate course in the use of polygraph technique from CFSL CBI - | 7-8 years Total subjects examined -98 persons |
| **SFSL ODISHA** | 3 forensic psychologists | Post-graduation in psychology | Asst. director - 24 yrs, 6 months Scientific officer 1 - 2 yrs 10months, Scientific officer 2 - undergoing probation and training |
| **SFSL Thiruvananthapuram** | Forensic Psychologists - 2 | Asst. Director – Ph.D. in Psychology Scientific officer- MSc. in Psychology | Ass Dir - 7 yrs Scientific officer- 5 yrs |
| **SFSL Bangalore** | One | Ph. D | 1 years |
| **CFL CBI NEW DELHI** | 5 | 3 person have Ph. D and one have M Phil and all are post graduate in psychology | |

# Appendix- VI

## DELAY

| Name of Laboratory | | |
|---|---|---|
| | Time Period within which tests are conducted from the date of request | Time period within which Report is given once the test is over |
| **DFSL Mumbai** | Tests are conducted on first come first preference basis Polygraph and BEOS - max 15 days and for Narco Analsis - Max 1 month | Approximately 15 days for issuing report |
| **FSL GOVT OF NCT DELHI** | As per availability of dates | within 45 days from the date of tests. |
| **SFSL LUCKNOW, UP** | According to the nature of the case | According to the nature of the case |
| **SFSL HARYANA** | Test conducted on first come first serve basis, tentative dates are fixed on receipt of request from the police and the test are conducted on these fixed dates | within two days |
| **SFSL NAGALAND** | a period of 2- 5 days depending on any other prior polygraph examination schedule | a period of 5- 20 days depending on the number of subjects examined. If individual examined in a case does not exeed 10 numbers of the subject. |
| **SFSL ODISHA** | Maximum 10 days depending upon previous case, availability of experts etc. | 2 to 3 days depending upon number of suspects, polygraph charts, questions asked etc. |
| **SFSL Thiruvananthapuram** | within one month when all formalities are completed | within one month when there is no repetition of test is required |
| **SFSL Bangalore** | Polygraph - 3 to 5 weeks after the request from IO it also depends upon IO s production of the test Narco - after the court permission, fitness by the cardiologist date were fixed for conducting the test | Polygraph - 1 to 3 months after the evaluation report is generated and submitted Narco 1 to 3 months after the evaluation report is generated and submitted |

## Appendix- VII

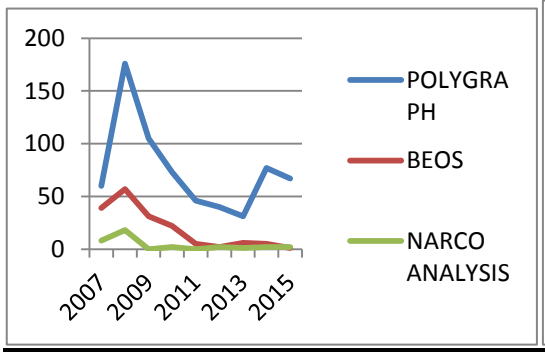
**Details as to Number of Subjects and Total Number of Cases in Which Polygraph, BEOS and Narco Analysis Tests are Conducted From 2007 to 2015.**

**Analysis of RTI information:**

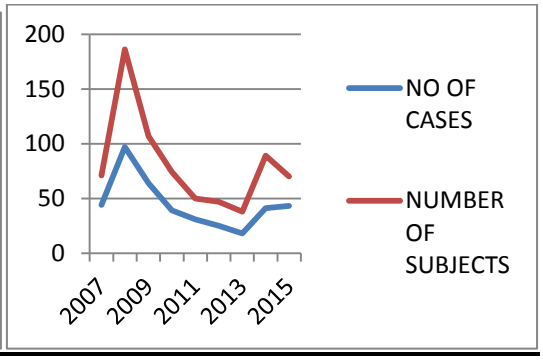
**App Table 1**

| Name of laboratory | Year | Reported cases from 2007 to 2015 | | Number of subjects taken on test basis | | | |
|---|---|---|---|---|---|---|---|
| | | Number of cases | Number of subjects | Polygraph | BEOS | Narco analysis | LVA |
| **DFSL Mumbai** | 2007 | 44 | 71 | 60 | 39 | 8 | |
| | 2008 | 97 | 186 | 176 | 57 | 18 | |
| | 2009 | 64 | 107 | 105 | 31 | 0 | |
| | 2010 | 39 | 74 | 73 | 22 | 2 | |
| | 2011 | 31 | 50 | 46 | 5 | 0 | |
| | 2012 | 25 | 47 | 40 | 2 | 2 | |
| | 2013 | 18 | 38 | 31 | 6 | 1 | |
| | 2014 | 41 | 89 | 77 | 5 | 2 | |
| | 2015 | 43 | 70 | 67 | 1 | 2 | |
| | Total | 402 | 732 | 675 | 168 | 35 | |

**NUMBER OF SUBJECTS TAKEN ON TEST BASIS App (FIG 1)**




**REPORTED CASES FROM 2007 To 2015 App (FIG-2)**

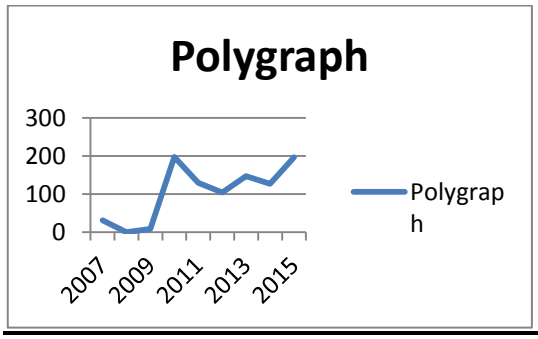



**Interpretation of data** – State FSL Mumbai conducts all tests other than LVA and analysis of FIG -1 shows that though number of polygraph tests was showing decreasing trend from 2011-13 after 2014, it is showing increasing trend. It is also found that BEOS test and Narco tests are also conducted, though they are few in number.

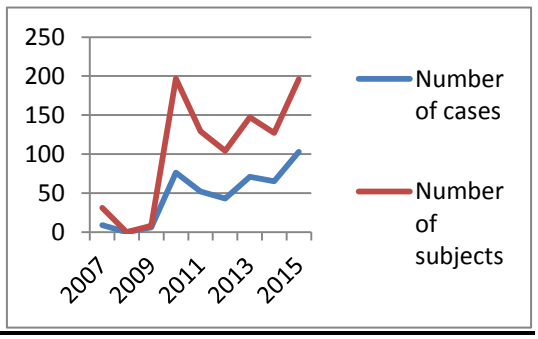
## App Table II

| Name of laboratory | Year | Reported cases from 2007 to 2015 | | Number of subjects taken on test basis |
|---|---|---|---|---|
| | | Number of cases | Number of subjects | Polygraph |
| **FSL GOVT OF NCT DELHI** | 2007 | 9 | 31 | 31 |
| | 2008 | 0 | 0 | 0 |
| | 2009 | 6 | 8 | 8 |
| | 2010 | 76 | 197 | 197 |
| | 2011 | 52 | 129 | 129 |
| | 2012 | 43 | 104 | 104 |
| | 2013 | 71 | 147 | 147 |
| | 2014 | 65 | 127 | 127 |
| | 2015 | 103 | 196 | 196 |
| | Total | 425 | 939 | 939 |

**NUMBER OF SUBJECTS TAKEN ON TEST BASIS App (FIG 3)**




**REPORTED CASES FROM 2007 TO 2015 App (FIG-4)**

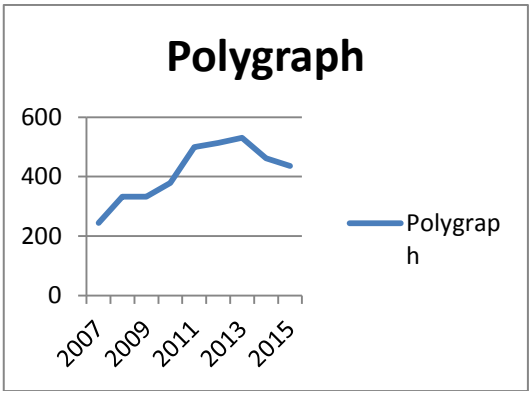



**Interpretation of the results:** FSL of NCT Delhi conducts only polygraph test. The data shows that number o subjects taking polygraph are showing an increasing trend.

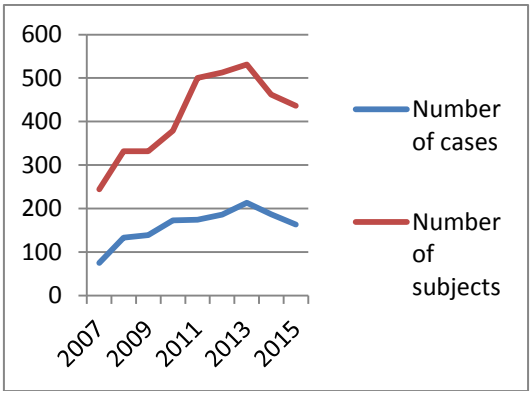
## App Table 3

| Name of laboratory | Year | Reported cases from 2007 to 2015 | | Number of subjects taken on test basis |
|---|---|---|---|---|
| | | Number of cases | Number of subjects | Polygraph |
| SFSL HARYANA | | | | |
| | 2007 | 75 | 244 | 244 |
| | 2008 | 133 | 332 | 332 |
| | 2009 | 139 | 332 | 332 |
| | 2010 | 173 | 379 | 379 |
| | 2011 | 174 | 500 | 500 |
| | 2012 | 186 | 513 | 513 |
| | 2013 | 213 | 531 | 531 |
| | 2014 | 187 | 462 | 462 |
| | 2015 | 163 | 436 | 436 |
| | Total | 1443 | 3729 | 3729 |

**NUMBER OF SUBJECTS TAKEN ON TEST BASIS App( FIG 5)**




**REPORTED CASES FROM 2007 TO 2015 App (FIG-6)**

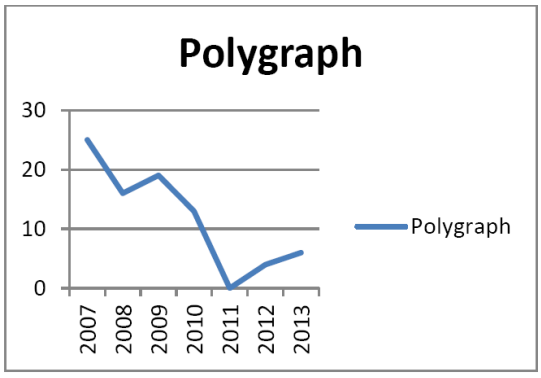



**Interpretation:** The data shows that number of subjects and number of cases reported for polygraph is showing an increasing trend.

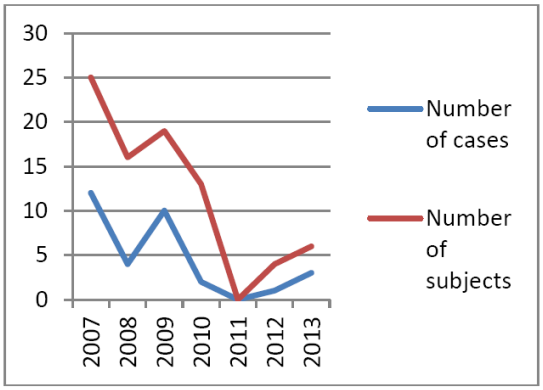
## App Table 4

| Name of laboratory | Year | Reported cases from 2007 to 2015 | | Number of subjects taken on test basis |
|---|---|---|---|---|
| | | Number of cases | Number of subjects | Polygraph |
| SFSL NAGALAND | | | | |
| | 2007 | 12 | 25 | 25 |
| | 2008 | 4 | 16 | 16 |
| | 2009 | 10 | 19 | 19 |
| | 2010 | 2 | 13 | 13 |
| | 2011 | 0 | 0 | 0 |
| | 2012 | 1 | 4 | 4 |
| | 2013 | 3 | 6 | 6 |
| | 2014 | TECH DEFECT | | |
| | 2015 | TECH DEFECT | | |
| | Total | 32 | 83 | 83 |

**NUMBER OF SUBJECTS TAKEN ON TEST BASIS App( FIG 7)**




**REPORTED CASES FROM 2007 TO 2015 App(FIG-8)**

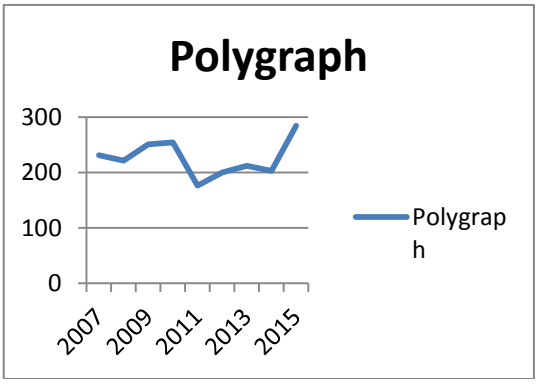



**Interpretation:** The test is stopped due to technical defect. No tests were conducted in 2011, however after that the number of cases were showing some improvement.

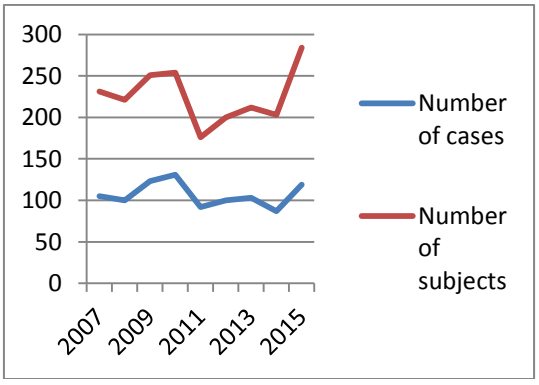
## App Table 5

| Name of laboratory | Year | Reported cases from 2007 to 2015 | | Number of subjects taken on test basis |
|---|---|---|---|---|
| | | Number of cases | Number of subjects | Polygraph |
| SFSL ODISHA | | | | |
| | 2007 | 105 | 231 | 231 |
| | 2008 | 100 | 221 | 221 |
| | 2009 | 123 | 251 | 251 |
| | 2010 | 131 | 254 | 254 |
| | 2011 | 92 | 176 | 176 |
| | 2012 | 100 | 200 | 200 |
| | 2013 | 103 | 212 | 212 |
| | 2014 | 87 | 203 | 203 |
| | 2015 | 119 | 284 | 284 |
| | Total | 960 | 2032 | 2032 |

**NUMBER OF SUBJECTS TAKEN ON TEST BASIS App ( FIG 9)**




**REPORTED CASES FROM 2007 TO 2015 App (FIG-10)**

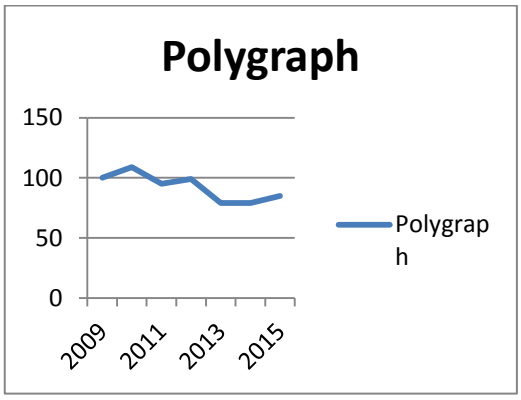



**Interpretation:** Though number of cases has dropped in 2011, it is showing increasing trend after that.

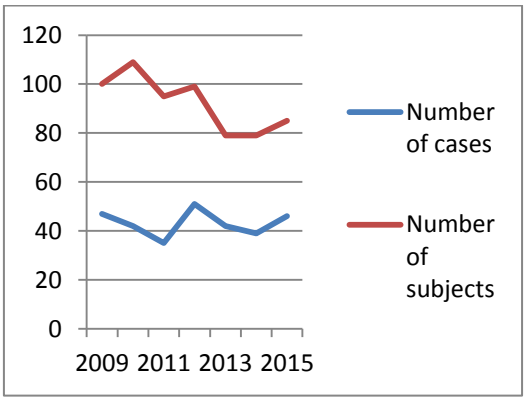
## App Table 6

| Name of laboratory | Year | Reported cases from 2007 to 2015 | | Number of subjects taken on test basis |
|---|---|---|---|---|
| | | Number of cases | Number of subjects | Polygraph |
| **SFSL KERALA** | | | | |
| | 2009 | 47 | 100 | 100 |
| | 2010 | 42 | 109 | 109 |
| | 2011 | 35 | 95 | 95 |
| | 2012 | 51 | 99 | 99 |
| | 2013 | 42 | 79 | 79 |
| | 2014 | 39 | 79 | 79 |
| | 2015 | 46 | 85 | 85 |
| | Total | 302 | 646 | 646 |

**NUMBER OF SUBJECTS TAKEN ON TEST BASIS App ( FIG 11)**




**REPORTED CASES FROM 2007 TO 2015 App (FIG-12)**

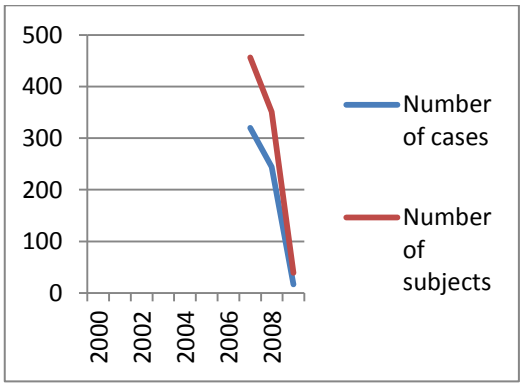



**Interpretation: The cases are coming up for polygraph, though less than 100 in number. From 2014, it is showing increasing trend.**

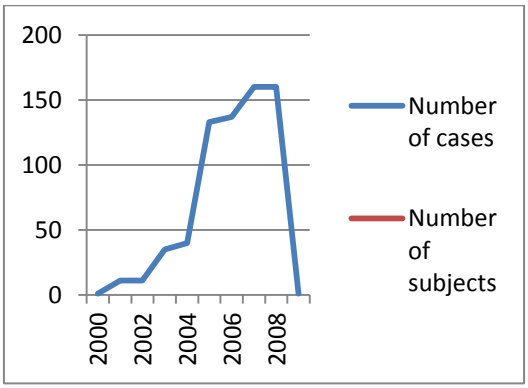
## App Table 7

| Name of laboratory | Year | Reported cases from 2000 to 2009 | | | | | |
|---|---|---|---|---|---|---|---|
| | | Number of cases | Number of subjects | Polygraph | | Narco analysis | |
| SFSL KARNATAKA | | | | Number of *cases* | Number of subjects | Number of cases | Number of subjects |
| | 2000 | | | | | 1 | |
| | 2001 | | | | | 11 | |
| | 2002 | | | | | 11 | |
| | 2003 | | | | | 35 | |
| | 2004 | | | | | 40 | |
| | 2005 | | | | | 133 | |
| | 2006 | | | | | 137 | |
| | 2007 | | | 320 | 456 | 160 | |
| | 2008 | | | 244 | 351 | 160 | |
| | **2009** | | | **17** | **39** | **1** | |
| | | FORENSIC PSYCHOLOGY DIVISION DISCONTINUED FROM 2010 | | | | | |
| | Total | 0 | 0 | 564 | | | |

**REPORTED CASES FROM 2007 TO 2015 - Polygraph App(FIG-13)**




**REPORTED CASES FROM 2007 TO 2015 - Narco analysis App (FIG-14)**

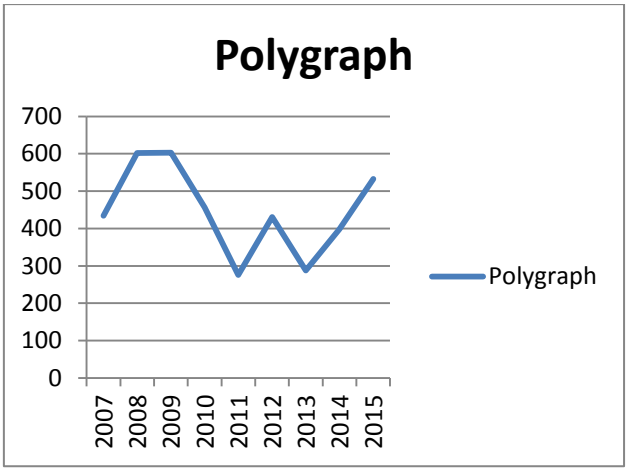



**Interpretation:** No tests were conducted after 2009**.**

## App Table 8

| Name of laboratory | Year | Reported cases from 2007 to 2015 | | Number of subjects taken on test basis |
|---|---|---|---|---|
| | | Number of cases | Number of subjects | Polygraph |
| **CFSL CBI DELHI** | | | | |
| | 2007 | | 434 | 434 |
| | 2008 | | 602 | 602 |
| | 2009 | | 603 | 603 |
| | 2010 | | 456 | 456 |
| | 2011 | | 276 | 276 |
| | 2012 | | 431 | 431 |
| | 2013 | | 288 | 288 |
| | 2014 | | 398 | 398 |
| | 2015 | | 533 | 533 |
| | Total | 0 | 4021 | 4021 |

**NUMBER OF SUBJECTS TAKEN ON TEST BASIS App( FIG 15)**




**Interpretation:** Though number of cases referred for polygraph has been reduced in 2013, it is showing increasing trend after 2013.

## Appendix VIII

## Questionnaire Addressed to the Investigating Officers

The object of this questionnaire is to ascertain whether Forensic Psychological Tests like Polygraph, Brain Electrical Oscillation Signature Profiling Test ( BEOS), Narco Analysis and Layered Voice Analysis are helpful aid to the investigating officers in collection of evidence, detection and investigation of crime and in the exoneration of innocent. The questionnaire is circulated as part of empirical study conducted by the researcher for PhD course. Question No: 1 is optional. Those **investigating officers who have resorted to the test *need not*** fill question **No: 18**.The **investigating officers who have not resorted to the tests** while conducting investigation **need not fill** question numbers **6-17**.It is also ensured that the information given by the investigating officers will be used solely for research purpose .The confidentiality of the information is also assured. Thank you for your cooperation.

1. Name (optional) :
2. Designation :
3. District :
4. Number of years of total service :
5. Whether you have been using any of the scientific tests like Polygraph, Narco Analysis, BEOS, Layered Voice Analysis etc. in investigation with respect to any of the following persons?
   - I. Suspects a. Yes b.No
   - II. Victims a. Yes b.No
   - III. Witnesses a. Yes b.No

**To be filled in by investigating officers who have resorted to the test (questions No: 6-17 and**

6. If Yes, which of the following scientific tests has been utilised?
   - (a) Polygraph: Yes/No
   - (b) Narco analysis Yes/No
   - (c) BEOS Yes/No
   - (d) Layered Voice Analysis (LVA) Yes/No
   - (e) Others, if any please specify:

6. a. If your answer is yes, kindly give the following information:

| Particulars | Case 1 | Case 2 | Case 3 |
|---|---|---|---|
| Nature of the offence charged (Provision of law involved) | | | |
| Which tests have been conducted ( Please mark ) | 1. Polygraph<br>2. Narco Analysis<br>3. BEOS<br>4. LVA | 1. Polygraph<br>2. Narco Analysis<br>3. BEOS<br>4. LVA | 1. Polygraph<br>2. Narco Analysis<br>3. BEOS<br>4. LVA |
| Which forensic science lab it was conducted | | | |
| Year in which it was conducted | | | |
| Whether it has helped in the investigation of the case? ( Please Mark) | 1. Yes<br>2. No | 1. Yes<br>2. No | 1. Yes<br>2. No |

If any other details, kindly specify:

7. Which type of cases it is usually decided to go for Polygraph, Brain mapping and Narco analysis tests? (Please Mark)

(a) All IPC offences (b) All sexual offences
(c)Only for offences punishable with imprisonment for more than seven years
(d)In terrorism and Narcotic drug cases (e) Others, please specify:

8. Circumstances in which an investigating officer usually go for these scientific tests when the subject gives consent.

(1) Only in very serious and stake cases in which there is no direct evidence and investigating officer feels that by going for the tests he may get a lead in the investigation ( either by making the case strong against the guilty or by exonerating an innocent suspect).

(a) Strongly agree (b) agree (c) disagree (d) strongly disagree

(2) To make the case fool proof so as to secure a conviction

(a) Strongly agree (b) agree (c) disagree (d) strongly disagree

(3) To make his part safe and absolve oneself from liability in not getting any lead

(a) Strongly agree (b) agree (c) disagree (d) strongly disagree

9. Who usually take the decision to conduct the tests like Polygraph while investigating the case?

(a) Investigating officer himself

(b) Only by superior officers above the rank of Deputy Superintendent of Police

10. Is it necessary that the person who is undergoing the tests like Polygraph must be in custody either police custody or judicial custody?

(a) Yes (b) No

11. Whether a person in bail can also be subjected to these tests?

(a) Yes (b) No

12. What is the time span that is taken between request made by investigating officers for Polygraph/Narco Analysis/ Brain mapping and in conducting the tests in Forensic science laboratory?

(a) Within 7 days (b) less than 2 weeks (c) More than 2 weeks (d) more than a month

If possible please specify the time span:

13. What is the time span between conducting of the test and obtaining the report from the forensic science laboratories?

(a) Within 7 days (b) less than 2 weeks, (c) More than 2 weeks (d) more than a month

If possible please specify the time span:

14. Who prepares the questions for the purpose of conducting the tests?

(a) Investigating officer Yes/No

(b) Forensic scientist Yes/No

(c) Others

15. Whether investigating officer can be present while the scientific tests like Polygraph are conducted?

(a) Yes (b) no

16. Do you have the opinion that scientific tests like Polygraph have helped you in collection of evidence, in effective investigation?

(a) Strongly agree (b) Agree (c) Disagree (d) Strongly Disagree

17. Do you have the opinion that additional safeguards are taken after *Selvi* decision to ensure health of the subjects by the investigating officers

(a) Strongly agree (b) Agree (c) Disagree (d) Strongly Disagree

(In *Selvi* v. *State of Karnataka* (2010) 7 S.C.C. 263, the Honourable Supreme Court has held that compelling a person to undergo Polygraph, Brain Mapping and Narco Analysis Tests would amount to violation of human rights)

18. Reasons for not resorting to the tests are ( **to be filled in only by those who have not resorted to the tests** )

(a) No opportunity was obtained as in all the cases investigated by the officer were mainly based on direct evidence

(b) The tests are not reliable

(c) Consent was not given by the subject

(d) Evidentiary value of the test was reduced due to *Selvi* decision

(e) Others

19. Do you have the opinion that the investigating officer's rush to these tests without making efforts to properly investigate the case.

(a) Strongly agree (b) Agree (c) Disagree (d) Strongly Disagree

**(To be answered by all)**

20. Do you have the opinion that banning of the tests like Polygraph would prejudicially affect criminal investigation?

    (a) Strongly agree (b) Agree (c) Disagree (d) Strongly Disagree

21. Do you have the opinion that the decision of Supreme Court in *Selvi* v. *State of Karnataka*, (2010) 7 S.C. C 263. has restricted the power of investigating officers in the collection of evidence

    (a) Strongly agree (b) Agree (c) Disagree (d) Strongly Disagree

22. Do you have the opinion that the subjects are wilfully refusing their consent to undergo these tests after the *Selvi* decision?

    (a) Strongly agree (b) Agree (c) Disagree (d) Strongly Disagree

23. Do you have the opinion that the judiciary has become more cautious in giving sanction to conduct these tests after *Selvi* Decision?

    (a) Strongly agree (b) Agree (c) Disagree (d) Strongly Disagree

24. What in your opinion shall be the probative value of the statements or information obtained from these tests like Polygraph?

    1. It must be an Investigative aid

       (a) Strongly agree (b) Agree (c) Disagree (d) Strongly Disagree

    2. It must be used as corroborative evidence

       (a) Strongly agree (b) Agree (c) Disagree (d) Strongly Disagree

    3. It must be used as Substantive Evidence

       (a) Strongly agree (b) Agree (c) Disagree (d) Strongly Disagree

25. Do you have the opinion that periodic training provided by the department in scientific developments and latest legislations is adequate to improve professional competency

    (a) Strongly agree (b) Agree (c) Disagree (d) Strongly Disagree

26. Do you have the opinion that the present legislative frame work is adequate to deal with scientific developments in criminal investigation

(a) Strongly agree (b) Agree (c) Disagree (d) Strongly Disagree

27. Do you think that there are problems with respect to admissibility of scientific evidence in courts?

(a)Yes (b) No

28. If yes, in question No: 27, do you think that the reason is

(a) Lack of scientific orientation among judges and lawyers
(b) Lack of scientific orientation among investigating officers
(c) Lack of coordination between scientists and courts
(d) Others

29. Do you have the opinion that the following factors would improve scientific investigation

(a) Separation of law and order and investigation in police department
(b) More scientific awareness to police officers as to collection and preservation of evidences
(c) More coordination among scientists and investigating officers right from the scene of occurrence
(d) Establishment of regional FSL's in every district
(e) Providing more facilities, infrastructure and staff to the department.
(f) Amendment in legislations and Police Standing orders in tune with scientific developments
(g) Steps must be taken to avoid delay in FSL's in conducting scientific tests
(h) More budget allocation with respect to matters pertaining to police investigation.
(i) Any others , kindly specify.

## Appendix- IX

## Details of Empirical Study - II

**Questionnaire to the Persons who are Subjected to Forensic Psychological Tests**

The object of interviewing the persons who were subjected to Forensic Psychological Tests like Polygraph, Brain Electrical Oscillation Signature Profiling Test ( BEOS), Narco Analysis and Layered Voice Analysis was to ascertain whether they have given free consent for conducting the tests, what are the safeguards taken before and after and while undergoing the tests and also to ascertain whether the tests were helpful in proving their innocence. As some of the cases are still pending, the identity of these persons and the case numbers could not be disclosed. The persons are given numbers. However nature of their charge, their age and health conditions and job description are provided. The information was collected personally by the researcher with the help of their Advocates.

1. Name (optional) :
2. Job/ Occupation :
3. Age :
4. Charge :
5. The test you have undergone
   - (a) Polygraph : (i) Yes (ii) No
   - (b) Narco Analysis : (i) Yes (ii) No
   - (c) BEOS[1] Test : (i) Yes (ii) No
   - (d) LVA[2] : (i) Yes (ii) No
6. Year in which the test was conducted
   - (a) Polygraph :
   - (b) Narco Analysis :
   - (c) BEOS Test :
   - (d) LVA :
7. Whether you have given free consent before undergoing the tests?
   - (a) Polygraph : (i)Yes (ii)No
   - (b) Narco Analysis : (i) Yes (ii)No
   - (c) BEOS Test : (i) Yes (ii)No
   - (d) LVA : (i) Yes (ii)No

[1] Brain Electrical Oscillation signature Profiling Test
[2] Layered Voice Analysis Test

8. Whether physical / psychological medical tests were conducted on or before conducting the tests

| | | | | |
|---|---|---|---|---|
| (a) | Polygraph | : | (i)Yes | (ii)No |
| (b) | Narco Analysis | : | (i) Yes | (ii)No |
| (c) | BEOS Test | : | (i) Yes | (ii)No |
| (d) | LVA | : | (i) Yes | (ii)No |

9. Laboratory in which the tests were conducted.

| | | |
|---|---|---|
| (a) | Polygraph | : |
| (b) | Narco Analysis | : |
| (c) | BEOS Test | : |
| (d) | LVA | : |

10. Whether laboratory authorities took your consent before conducting the Tests

| | | | | |
|---|---|---|---|---|
| (a) | Polygraph | : | (i)Yes | (ii)No |
| (b) | Narco Analysis | : | (i) Yes | (ii)No |
| (c) | BEOS Test | : | (i) Yes | (ii)No |
| (d) | LVA | : | (i) Yes | (ii)No |

11. Whether lawyer was present while the tests were conducted.

| | | | | |
|---|---|---|---|---|
| (a) | Polygraph | : | (i)Yes | (ii)No |
| (b) | Narco Analysis | : | (i) Yes | (ii)No |
| (c) | BEOS Test | : | (i) Yes | (ii)No |
| (d) | LVA | : | (i) Yes | (ii)No |

12. Whether investigating officers were present while the tests were conducted?

| | | | | |
|---|---|---|---|---|
| (a) | Polygraph | : | (i)Yes | (ii)No |
| (b) | Narco Analysis | : | (i) Yes | (ii)No |
| (c) | BEOS Test | : | (i) Yes | (ii)No |
| (d) | LVA | : | (i) Yes | (ii)No |

13. Could you explain the procedure of conducting the tests? How long it was taken etc.? Number of questions / probes asked etc.?

| | | | | |
|---|---|---|---|---|
| (a) | Polygraph | : | (i)Yes | (ii)No |
| (b) | Narco Analysis | : | (i) Yes | (ii)No |
| (c) | BEOS Test | : | (i) Yes | (ii)No |
| (d) | LVA | : | (i) Yes | (ii)No |

14. Do you think that truth could be detected by conducting these tests?

| | | | | |
|---|---|---|---|---|
| (a) | Polygraph | : | (i)Yes | (ii)No |
| (b) | Narco Analysis | : | (i) Yes | (ii)No |
| (c) | BEOS Test | : | (i) Yes | (ii)No |

(d) LVA : (i) Yes (ii)N

15. Whether you are undergoing any physical or psychological problem as a result of undergoing these tests?

(a) Polygraph : (i)Yes (ii)No

(b) Narco Analysis : (i) Yes (ii)No

(c) BEOS Test : (i) Yes (ii)No

(d) LVA : (i) Yes (ii)No

16. Do you think that any of your rights have been infringed by way of administering these tests?

(a) Polygraph : (i)Yes (ii)No

(b) Narco Analysis : (i) Yes (ii)No

(c) BEOS Test : (i) Yes (ii)No

(d) LVA : (i) Yes (ii)No

**Details of information provided by the subjects**

**Case I**

Age: 32 years

Qualification: Post graduation.

Charge : Murder

Test Conducted: Polygraph in Thiruvanathapuram FSL, in 2013.

The person interviewed was the accused who was charged with the murder of his student, which he and his counsel deny. He stated that he gave consent for polygraph test as otherwise; the investigating officers may take adverse inference against him. The atmosphere in the laboratory was cordial. They take consent and give time for relaxation also. The investigating officers did not accompany him and his lawyer was also present at the time of the test. He stated that whole session was videographed and took nearly four hours. Regarding some questions asked, he stated that he felt like committing suicide. He stated that he is unsure as to the utility of these types of tests. He also said that he read *Selvi* decision after undergoing the test. He also stated that he has not suffered any physical or psychological problem only because of conducting this test.

Case status: still pending (test results not revealed to me).

**Case II**

Age: 59 years

Occupation: Engineer, KSEB ( retired).

Charge: Serious fraud

Test Conducted: Polygraph in Thiruvanathapuram FSL, in 2007.

The person interviewed was suspected of committing serious fraud and misappropriation of large amount of money while performing his official duties. He denied the charges. He voluntarily submitted for Polygraph test. No lawyer was present when the tests were conducted. The laboratory authorities took his written consent before conducting the test. The test result was in his favour. He was exonerated. The actual culprit was booked.

**Case III**

Age: 30 years

Occupation: House maid

Charge : murder

Test Conducted: Polygraph in Thiruvanathapuram FSL, in 2014.

The person interviewed was suspected of committing muder of her own child. The story of the investigating officers were that she had some illict relation with an outsider. As it was revealed to her child, she along with the man committed the murder of her child. The suspect denied both illicit relation and murder. She voluntarily submitted to Polygraph Test. She stated that investigating officers were not present while the test was conducted, though they accompanied her. Her lawyer was also present. Polygraph test results were in her favour. Later investigation also revealed the same. Another person was booked. Her name is removed from the list of accused.

Case status: still pending.

**Case IV**

Age: 92 years

Occupation: Priest in temple

Charge : Theft.

Test Conducted: Polygraph in Thiruvanathapuram FSL, in 2014.

The person interviewed was suspected of committing theft of ornaments and jewellery of the temple in which he was a priest for several years. He stated that he had voluntarily submitted to the polygraph test to prove his innocence. He stated that the laboratory authorities were cordial and his lawyer was also present when the test was

conducted. His medical history was also enquired before conducting the test. He also stated that he did not suffer from any physical or psychological problem because of the administration of the test. The test longed for nearly four hours and he was given time for relaxation also. The test results were in his favour. No charge sheet is filed against him so far.

**Case V**

Age: 33 years.

Qualification: Graduation.

Occupation: working in a private firm.

Charge: Abetment of suicide

Test Conducted: Polygraph in Thiruvanathapuram FSL, in 2011.

The person interviewed was suspected of abetting the suicide of his lover. The investigating officers believed that the suicide occurred due to some other reasons. The suspect voluntarily submitted to the Polygraph Test. He stated that the test lasted for nearly three hours. The Laboratory authorities were very cordial. The test was conducted after taking his consent. He was not accompanied by any lawyer. The test results were in his favour. The Police closed the case.

**Case VI**

Age: 54 years.

Occupation: House maid and other daily wages work

Charge: murder

Test Conducted: Polygraph and BEOS Test conducted in DFS Gujarat, in 2013.

The person interviewed was suspected of committing murder along with two others. Chief Judicial magistrate Ernakulum ordered to conduct Polygraph Test on her in 2008. But State FSL Thiruvanathapuram did not subject her to Polygraph test as she had high anxiety and mental tension. Though, Court again ordered to subject her to polygraph examination in Bangalore laboratory that was not conducted. Chief Judicial magistrate Ernakulum, again ordered in 2013 to conduct Polygraph Test and BEOS Test on the accused. She stated that she gave consent, because she wanted to relieve herself from the case. In the DFS Gujarat laboratory the atmosphere was very cordial. She was given time for relaxation. She stated that she could not completely understand the procedure and that the whole process took nearly three days. The Polygraph Report and BEOS report conducted at DFS Gujarat, was not favourable to her. However she was acquitted as the case was not proved beyond

reasonable doubt. Presently appeal is pending.( Her counsel stated that she suffers from some sort of mental aberration).

**Case VII**

Age: 56 years.

Occupation: Carpenter

Charge: murder

Test Conducted: Polygraph in Thiruvanathapuram FSL, in 2008 and Polygraph and BEOS test conducted in DFS Gujarat, in 2013.

The person interviewed was suspected of committing murder along with two others. Chief Judicial magistrate Ernakulum ordered to conduct Polygraph Test on him in 2008. State FSL Thiruvanathapuram conducted Polygraph test on him in 2008, which was in his favour. Chief Judicial Magistrate, Ernakulum again ordered in 2013 to conduct Polygraph Test and BEOS Test on the accused. He stated that he gave consent as he wanted to prove his innocence. He stated that he was even ready to take Narco Analysis Test. He stated that in the DFS Gujarat laboratory the atmosphere was very cordial. He was given time for relaxation. He stated that the translator was the investigating officer himself (which later the laboratory authorities clarified that translators are usually outsiders who are appointed by the court. They have no direct relation with investigating officers). He also complained that his lawyer was also not present and there was no one to speak for him. However he stated that Laboratories authorities were gentle to him. He stated that the whole process took nearly three days.( Polygraph and BEOS together).The Polygraph Report and BEOS report conducted at DFS Gujarat, was favourable to him. He was acquitted. Presently appeal is pending.

**Case VIII**

Age: 46 years.

Occupation: Painter

Charge: murder

Test Conducted: Polygraph in Thiruvanathapuram FSL, in 2008, Narco Analysis was conducted in Bangalore Laboratory in 2008 and Polygraph and BEOS test conducted in DFS Gujarat, in 2013.

The person interviewed was suspected of committing murder along with two others. Chief Judicial magistrate Ernakulum ordered to conduct Polygraph Test and Narco Analysis Test on him in 2008. State FSL Thiruvanathapuram conducted Polygraph test on him in

2008, which was in his favour. He was subjected to Narco Analysis in Bangalore State Forensic Science Laboratory in December 2008.However CD containing the results and record of Narco Analysis was in a damaged condition. The accused stated that due to administration of Narco Analysis he do not suffer from any health problem. All the medical checkups were taken on prior dates. He told that he was feeling heaviness in head for nearly two days, which is not much severe. Chief Judicial Magistrate, Ernakulum again ordered in 2013 to conduct Polygraph Test and BEOS Test on the accused. He stated that he gave consent as he wanted to prove his innocence. He stated that in the DFS Gujarat laboratory the atmosphere was very cordial. He was given time for relaxation. He stated that the laboratory authorities took his consent before conducting the tests. He complained that his lawyer was also not present. However he stated that Laboratories authorities were gentle to him. He stated that the whole process took nearly three days. (Polygraph and BEOS together).He stated that he was feeling slight head ache after BEOS Test. The Polygraph Report and BEOS report conducted at DFS Gujarat was favourable to him. He was acquitted. Presently appeal is pending.

**Case IX**

Age: 42 years.

Occupation: Farmer

Charge: murder

Test Conducted: Polygraph in Thiruvanathapuram FSL, in 2008.

The person interviewed was suspected of committing murder. Chief Judicial magistrate Ernakulum ordered to conduct Polygraph Test on him in 2008. State FSL Thiruvanathapuram conducted Polygraph test on him in 2008, which was in his favour. He was not included in the list of the accused.

**Case X**

Age: 52 years.

Occupation: Shop owner

Charge: murder

Test Conducted: Polygraph in Thiruvanathapuram FSL, in 2009.

The person interviewed was charged for the murder of his staff in his shop. There was no direct evidence. The body was found floating in nearby river. The Post mortem Report showed that the deceased died due to drowning. However, the water in the river was not enough for causing death by drowning. On enquiry it was found that the deceased boy had an affair with the daughter of the shop owner. The shop owner was the natural suspect.

He gave consent for conducting the test. The accused told that in the laboratory, the authorities were cordial. He also told that 100's of questions were asked. The whole session lasted for nearly three and half hours. The report was against him. He also confessed his crime.

## Appendix- X

## Model Legislation Governing Forensic Psychological Tests

## Forensic Psychological Tests Act, 2018

**Preamble**- Whereas it is expedient to provide a law governing Forensic Psychological Tests in India; it is enacted as follows:

### Chapter I

### Preliminary

1. **Title and Extent of Operation of the Act**. **-** This Act is called Forensic Psychological Tests Act and shall extend to whole of India except the State of Jammu and Kashmir.

2. **Interpretation Clause**. **-** (1) In this Act the following words and expressions are used in the following senses, unless a contrary intention appears from the context.

(a) **"Investigation". -** Investigation includes all the proceedings under this Code for the collection of evidence conducted by a police officer or any person, other than a magistrate, who is authorized by a magistrate in this behalf.

(b) **"Offence". -** Offence means offence under Indian Penal Code or any other law in force which is punishable with death or imprisonment for life or imprisonment for a term exceeding 2 years and also include offences affecting socio economic conditions of the country or has been committed against a woman or a child below the age of fourteen years.

(c) **"Forensic Psychological Tests". -** Forensic Psychological Tests means Tests conducted in the Forensic Psychology Division of Forensic Science Laboratory which includes both invasive and non invasive tests.

(d) **"Invasive Tests". -** Invasive Tests means tests which are invasive in nature and includes Narco Analysis and such other similar tests.

(e) **"Non - Invasive Tests". -** Non Invasive Tests means tests which are non-invasive in nature and include Polygraph, Neuro Imaging Tests, Layered Voice Analysis and such other similar tests.

(f) **"Polygraph". -** Polygraph is an instrument that detect and records changes in physiological characters like pulse rate, blood pressure, respiration and perspiration simultaneously.

(g) **"Neuro Imaging Tests". -** Neuro Imaging Tests include Functional Magnetic Resonance Imaging and Electro Encephalograph based Tests and includes Brain Electrical Oscillation Signature Profiling Test, Brain Fingerprinting Test and such other tests.

(h) **"Narco Analysis Test"**[1]**.** Narco Analysis Test means Psychotherapy conducted while the patient is in a sleep like state induced by Barbiturates or other drugs especially as a means of releasing repressed feelings, thoughts/ memories.

(i) **"Layered Voice Analysis Test" . -** Layered Voice Analysis Test is a non invasive technology for detection and identification of different emotions and personality traits, using voice.

(j) **"Psychological Stress Evaluator".-** Psychological Stress Evaluator is an instrument that detect signs of stress in the voice .

(k) **"Voice Stress Analyser". -** Voice Stress Analyser is an instrument that uses inaudible voice cues to detect stress.

(l) **"Examiner"**. - Examiner means Forensic Psychologist and also include psychiatrist, Physician, anesthetists and paramedical staff.

(m) **"Forensic Psychologist".** – Forensic Psychologist is an expert having a post graduate degree in psychology and registered by the appropriate statutory authority.

(n) **"Subject".-** Subject include persons who are subjected to Forensic Psychological Tests and includes suspects, accused, witnesses and victims.

(o) **"Forensic Science Laboratory".** - Forensic Science Laboratory means any approved institution or place from where forensic Services are offered or rendered.

[1] Definition is same as that provided in American Heritage Dictionary of the English Language, Houghton Mifflin Harcourt Publishing Company ,Fifth Edition,2016. http://www.thefreedictionary.com/Narco+Analysis

(p) **"Police officer". -** Police officer means officer not below the rank of Sub Inspector.

(2) All words and expressions used and not defined in this Act but defined in Indian Penal Code, 1860 Indian Evidence Act, 1872 and The Code of Criminal Procedure, 1973 shall have same meaning as given to them in those Acts.

## Chapter II

### Authorities and their powers to carry out Forensic Psychological Tests

3. **Authorities and their power to carry out Forensic Psychological Tests on any person . -**

(1) Any police officer not below the rank of Sub Inspector may take decision as to subjecting any person who is acquainted with facts and circumstances of the case to the tests which are non-invasive in nature even without his consent, if there are reasonable grounds to believe that the tests may produce evidence which may give lead in the investigation or will help in any manner to prove or disprove his connection with the offence committed.

Provided that police officer shall not take decision as to subjecting a person to Forensic Psychological Tests, if the person who is acquainted with facts and circumstances of the case is below 12 years of age or is a victim of sexual offence except with his consent or consent of the guardian.

(2) Any police officer not below the rank of Sub Inspector may take decision as to subjecting to the tests, any person acquainted with facts and circumstances of the case which are invasive in nature with his informed consent, if there are reasonable grounds to believe that the tests may produce evidence which may give lead in the investigation or will help in any manner to prove or disprove his connection with the offence committed.

(3) If police officer has arrested the persons mentioned in clause (1) and (2) referred above, then such person shall be allowed to consult his legal practitioner before filing application in the court for seeking permission to carry out the test. The physical, emotional and legal implication of the test should be explained to him by the police and his lawyer.

4. **Condition precedent for seeking consent of the subject for Forensic Psychological Tests**.-

(1) Before requesting consent, the police officer , concerned shall inform the subject :

(i) The test which is proposed to be conducted and the nature of the test.

(ii) That the evidence obtained would be used against him

(iii) That the person has right to refuse to give consent

Provided that the police officer shall not apply any inducement threat or promise to obtain consent nor shall the person be subjected to any non penal consequence for refusing to give consent.

5. **Power of judicial officer to make an order for conducting Forensic Psychological Test**.-

A magistrate or judicial officer having jurisdiction can make an order directing the police officer concerned for carrying out the Forensic Psychological Test after hearing both the parties after taking into consideration the seriousness of the case, age and health of the subject, utility of the evidence etc.

Provided that subject against whom the test is proposed to be conducted shall be represented by a lawyer. If the subject is a suspect/ accused and is unable to appoint a lawyer, a lawyer shall be appointed at the expenses of the state.

Provided that, in the case of invasive test, magistrate shall order for the test only in exceptional cases after recording the reasons for the same.

**6. Procedure to be complied by the judicial officer before making an order under Section 5.-**

1. Every magistrate exercising power under this section shall act only on the written application given by the police officer concerned in the charge of the investigation.
2. The application shall specify the type of Forensic Psychological Test proposed to be conducted.
3. If the application moved by the police officer is rejected by the magistrate, then he can move an application before the sessions judge having jurisdiction.
4. If the test which is proposed to be conducted is an invasive test, then consent should be recorded before the judicial magistrate.

5. Before making an order under Section 5 , the magistrate shall satisfy himself that:
   (a) If the person on whom the Forensic psychological Test is proposed to be conducted is a suspect or an accused and from the evidence already collected there are reasonable grounds to believe that the evidence obtained from that test would prove or disprove the case against him or give a lead in the investigation.
   (b) If the person on whom the Forensic Psychological Test is proposed to be conducted is a person other than suspect or an accused and if there are reasonable grounds to believe that the evidence from the test would give a lead in the investigation.
   (c) That carrying out the test is justified in the circumstances of the case.

7. **Order of the judicial officer**.-

(1) The order of the judicial magistrate shall be a speaking order and it must specify:
   (a) The type of the Forensic Psychological Test to be conducted.
   (b) The reasons for the order.
   (c) Ordering that the person against whom the order is made shall subject himself to the Forensic Psychological Test as provided in the order.

(2) The judicial officer can also make an interim order if there are reasonable grounds to believe that the utility of conducting the test would be lost owing to the delay in carrying it out. Before issuing this interim order also, the judicial officer shall satisfy the conditions under Section 6 and 7 of the Act.

8. **Mandatory rules for Carrying out the Forensic Psychological Tests**.-

The authority or the agency carrying out the forensic procedure shall observe the following guidelines:

(1) The test must be conducted only in the Forensic Science Laboratory or authorised hospital as the case may be

(2) The test must be conducted by professional person having qualifications and competency in this regard.

(3) The test shall be carried out with utmost respect and decency to the subject and shall not be carried out in a cruel and inhuman manner.

(4) The tests shall be conducted in the presence of a defence lawyer/ court appointed lawyer.

(5) The tests should not be conducted in the presence of police officer.

(6) In the case of persons who require translator, he shall be appointed by the court and shall in no case a police officer.

(7) A full medical and factual narration received must be taken on record.

9. **Presence of a Relative or a Friend in the case of children below 12 years or victims of sexual offences**.-

If the subject is a child below 12 years or victim of sexual offence, either a relative or friend shall be allowed to be stayed with him while conducting the test.

10. **Circumstances in which court may order for conducting Forensic Psychological Tests on a child below 12 years or a victim of sexual offence.-**

(1) The court may order for conducting Forensic Psychological Test on a child below 12 years or a victim of sexual offence, if

(a) The consent of the guardian is obtained in the case of the child and the consent of the victim/ guardian is obtained in the case of sexual offences. And

(b) There are reasonable grounds for believing that the test is likely to produce evidence which would give a lead in the case

2) In determining whether to make an order under this section, the court shall take into consideration the seriousness of the case, the surrounding circumstances, nature of the offence, utility of the evidence etc.

## Chapter III

## Duties and responsibilities of Forensic Science Laboratory and a Forensic psychologist

11. **Responsibility of the Forensic Science Laboratory and Psychologists in the Laboratories**.-

Once an order is made by the court to conduct the Forensic Psychological Test, the laboratory and the Psychologist shall be responsible only to the court and not to any other body or person.

12. **Duties of Psychologists in Forensic Science Laboratories**.-

(1) Restrictions as to disclosure of the test results-

(a) The psychologist who conducts the test shall not intentionally disclose the results of the test to any other person other than court.

(b) The whole Procedure of the test shall be video recorded.

(c) After the completion of the test, the report as to the results of the test, and the relevant CD's shall be forwarded by the Director Forensic Science Laboratory to the court. The results shall not be disclosed to any outsider without the permission of the court.

13. **Copy of the report to be given by the court to the subject**.-

Once the report is filed in the court, copy of the report may be given free of cost to the subject on application made by him.

14. **Admissibility of evidence collected through Forensic Psychological Tests**.-

(1)If the evidence is collected in accordance with procedure prescribed in this Act,

(a) In the case of non-invasive Tests, it may admissible in evidence as corroborative evidence.

(b) In the case of Invasive Tests, it may be used only as an investigative aid.

15. **Offences with respect to which Forensic Psychological Test may be conducted**.-

(1) In the case of non-invasive tests, the test may be administered with respect to the offences punishable with more than 2 years imprisonment.

(2) In the case of invasive Tests, the tests may be conducted with respect to the offences which is punishable with more than 10 years imprisonment or life imprisonment or death penalty and also with respect to the offences affecting socio economic condition of the country, offences affecting women and children.

16. **Procedure for administering the test**. - The procedure for administering the test shall be as per the procedure prescribed by the Laboratory Procedure Manual for the specific test.

## Chapter IV

## Offences and Penalties

**17. Wilful leakage of CD's or report of Forensic Psychological Tests to the media or a third party.-**

If any person willfully leaks any CD's or report of forensic psychology tests to the media or third party, he shall be liable for imprisonment which may extend to one year and shall also be liable for fine.

18. **Liability of person who conducts or aids in conducting Forensic psychological Tests**.-

1. No civil or criminal liability is incurred by any person who conducts or aids in conducting the test for anything properly and necessarily done or omitted to be done in good faith , if such person on reasonable grounds believed that :
   (a) Informed consent had been given for the forensic test which is invasive, or
   (b) The conducting of the test had been duly ordered by the court having jurisdiction.

## Chapter V

## Miscellaneous

19. **Application of other laws not barred.-**

The provisions of this Act shall be in addition to and not in derogation of, the provisions of any other law for the time being in force.

**20. Power to remove difficulties.-**

**(1)** If any difficulty arises in giving effect to the provisions of this Act, the Central Government may, by order, published in the official Gazette, make such provisions not inconsistent with the provisions of this Act as may appear necessary for removing the difficulty

Provided that no order shall be made under this Section after the expiry of two years from the date of commencement of this Act.

**(2)** Every order made under this Section shall be laid as soon as may be after it is made, before each house of Parliament.