Review Paper

Role of Forensic Statement Analysis in Questioned Document: A Review

Jasani Nirali*, Sharma Shweta and Patel Ankita
Institute of Research and Development, Raksha Shakti University, New Mental Corner, Meghaninagar Ahmedabad, Gujrat, 380016, India
jasaninirali@gmail.com

Abstract

Forensic statement analysis, involves examination of the words, word frames and content of the statements given during legal proceedings as it is anticipated that while being deceitful, people use different words, phrases, word frames and content in their statements. Basis for Forensic statement analysis depends on the fact that people do not lie. Individuals do speak truth in general course. Even while they lie, they will tell a partial truth. Since, it is easier to speak up the partial truth than to completely concoct a statement. The present paper reviews the comparison between words of subject's statement and other words used in the same statement, by dividing them into smaller individual elements to retrieve any important information or deception in that statement. The technique of forensic statement analysis, which is a bridge between linguistic polygraph and crime scene profiling, enables the IO (Investigating Officer) to get the information about the suspect and also to know the root cause of the crime which is used primarily for detecting deception. The information extracted can be used for further interviews/interrogations. In India, Forensic statement analysis is an upcoming technique which has not been explored much. Although its strength can be judged based on its usage in a handful of popular cases. Minute examination with effective detection of deception only from the statement structure helps the forensic examination to step ahead in investigation.

Keywords: Forensic Statement Analysis, Deception, Linguistic Polygraph, Crime Scene Profiling.

Introduction

The basic technique of S.C.A.N. (Scientific Content Analysis) emerged as a result of studying the linguistic behavior of people's day to day communication by Mr. Avinoam Sapir, a former polygraph examiner. The investigative discourse analysis also called a statement analysis is also a technique for analyzing words that people use. William Stern, in an article "The witness Psychology" hypothesized that cognitive ability and interviewing process affects the content of the statement. Stern is considered as "Father of Statement Analysis" leading to the enhanced research of Criteria based Statement Analysis.

Criteria for Statement Analysis were incorporated into an assessment procedure from the Undeutsch's criteria known as Statement Validity Assessment (SVA) by Kohnken and Steller, 1988[1]. Statement Validity Assessment is similar to Statement Analysis whose core phase is Criteria Based Content Analysis (CBCA) and it was accepted as Evidence in courts of Germany in 1950's. And thus it was before four decades, the method of Statement Validity Analysis was developed in Germany and Sweden. The Statement Reality Analysis was launched in 1954 by Undeutsch which was primarily defined in English in the year 1982. To evaluate the content of any statement the work given by Undeutsch was planned and standardized by Steller and Kohnken[2].
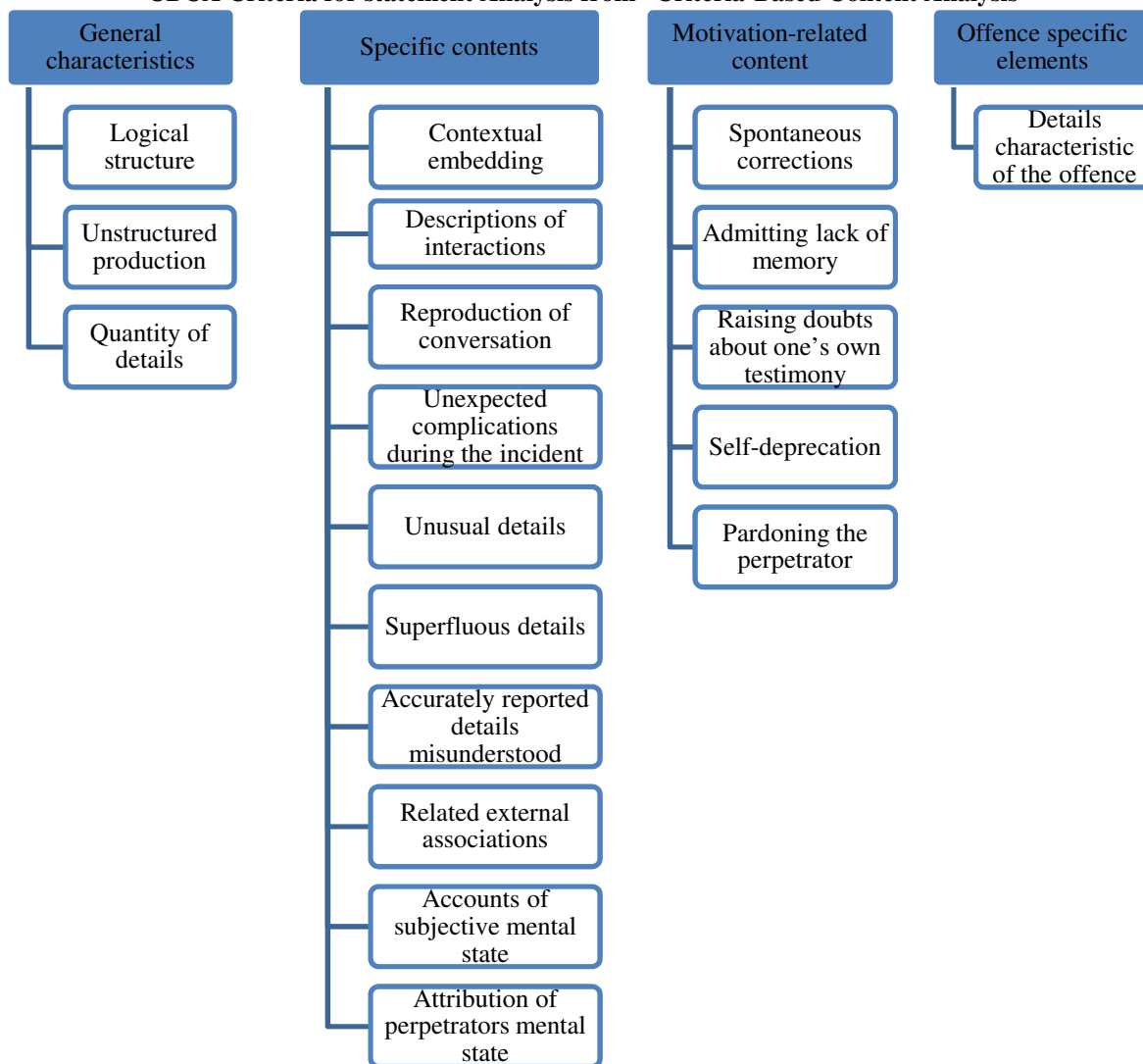
Forensic Statement Analysis involves examination of the word choice, structure and content of the statements considered in legal proceedings. It is assumed that while being deceitful, people use different words, phrases, structure and content of their statements. People use language differently when they speak and when they write: In speech, language expresses truth as a progression. In writing, truth is expressed as an object.

Forensic Experts are always involved in collecting qualitative facts from every case. The facts may be interview of suspect, information related to peers etc, which may help them to insight other corroborative information. Search for linguistic gaps and cues in statements are the basic tasks of the statement investigator. The fundamental principle of statement analysis as proposed by Sapir is "Denying guilt is not the same as denying the act[3]. An investigator must obtain suspect's words unaffected and unbiased by himself. Statement thus obtained can be in written or oral form.

In written statements, deception cues varies in relation to planning opportunities, rehearsal time, response time and editing opportunities. As per Picornell, 2013 obscurity in a statement can be evaluated by considering features like Verbs, adverse terms, intellectual verbs and indefinite pronouns. Excessive detailing and irrelevant random episodes in a statement which do not have synchronization is an inevitable feature of lack of cohesion[4]. According to DePaulo et al., Truths and lies can be detected better in a written statement rather than from a video[5]. Statements can be examined using the criteria mentioned in Table-1.

Table-1
CBCA Criteria for statement Analysis from "Criteria-Based Content Analysis"[2]

General characteristics	Specific contents	Motivation-related content	Offence specific elements
Logical structure	Contextual embedding	Spontaneous corrections	Details characteristic of the offence
Unstructured production	Descriptions of interactions	Admitting lack of memory	
Quantity of details	Reproduction of conversation	Raising doubts about one's own testimony	
	Unexpected complications during the incident	Self-deprecation	
	Unusual details	Pardoning the perpetrator	
	Superfluous details		
	Accurately reported details misunderstood		
	Related external associations		
	Accounts of subjective mental state		
	Attribution of perpetrators mental state		

Considering the 19 criteria mentioned in annexure-I statements are allotted CBCA Scores which are highly affected by the truthfulness of the statement and also by many other factors for which a validity checklist has been created which consists of descriptions thought to be relevant and affecting CBCA Scores by Raskin and Esplin[6], Steller[2], Steller and Boychuk[7], and Yuille[8].

Research Work

The criteria for the authenticity of the statements were first discussed by Undeutsch in his work "Veracity assessment of statements"[9,10]. He stated that memory based statements when a person has really faced the situation varies in content and quality with the statements which are given with intense thoughts. Amongst the 19 suggested[9-12] for CBCA, there are certain criteria that demonstrate contrast to the truthfulness[13]. These criteria raise doubts on one's statement regarding the different factors like lack of memory, corrections made without prompting from the interviewer, self incriminating details etc.

A study conducted by Boychuk[14] and Anson et.al.[15] explains the importance of age in relation to criteria based content analysis (CBCA). Steller and Boychuk[7] explain that Statement Validity Analysis is a method of structuring and assessment of child sexual abuse complaints by systematically collecting and examining information from children's interviews and other relevant case facts. The other study conducted by them reveals the use of nine SVA criteria to differentiate true and false stories provided by the children under different hypothetical situations. According to Vrij, CBCA is a more efficient technique compared to SCAN which lacks a set of cohesive criteria[16]. CBCA is best used as a "lie detection tool."DeTurck and Miller, 1985, supported the Undeutsch's hypothesis and suggested that the statements given by a deceitful person lacks in information

or gives fewer details about the event as compared to truthful people[17]. They compared the verbal and nonverbal cues of subjects and found six cues like hand gestures, speech errors, etc. to be very strongly linked with the deception. Information Manipulation Theory (IMT) was developed by McCornack, 1992, suggesting that deceitful persons do not comply with the informational necessity of the interrogation. The information provided by them was less logical and deviated from the norms.

Yuille, conducted a study with children of age 6 to 8 years in which they were asked to formulate a fake and a truthful story. It was found that 74.4% of fake story and 90.9% of truthful stories were assessed correctly with the help of SVA[8]. Lamers-Winkelman et. al. in a study "Children's Testimony in the Netherlands- A study f Statement Validity Analysis" compared the amount of criteria based content analysis in the statement of sexual abuse in children of different age groups of Netherlands where a significant correlation was revealed between the age and the presence of several CBCA criteria and concluded that in order to draw an accurate examination through Statement Validity Analysis, age related norms are a necessary tool[18].

The utility of SVA criteria for detection of deception amongst adults was reported by Landry et al.. Zaparniuk et al., determined high degree of accuracy in truthful and deceptive statements by SVA in which subjects were shown a video and asked to recall it as if they have witnessed the event in real[20]. In a study by Kohnken[21], Macdonald and Michaud[22], a deceptive statement holds a difficult cognitive task in contrast to a truthful statement. This includes substitutions, repetitions, decrease in information and hesitations as there is a more cognitive load. In this regard Kohnken conducted an experiment examining the testimony on the basis of 13 criteria which suggested the suitable approach of information processing in investigating witness deceptions.

Porter et al. 1995 in a study "Credibility assessment of criminal suspects through statement analysis" discussed the keystones of statement analysis techniques for knowing the reliability of the information given by the suspects. Lexical Diversity (LD) is the use of different words in testimony. A credible statement should show low LD (Hollien)[23]. Lexical diversity is evaluated in terms of "type-token ratio" (TTR) which is the ratio of distinct words to total numbers of words in the statements or segments of statements. As per Carpenter, deceptive statements show higher TTR than normal mean TTR value[24]. Lies can be determined within content by scrutinizing TTR variations. Stylometry can be used to detect Lexical Diversities for analysing several messages and its origin. This can also be used for determining the genuineness or spuriousness of the messages[25].

Charles et al. in a study "Efficacy of Forensic statement Analysis in distinguishing truth from deceptive eyewitness accounts of highly stressful events" examined the efficiency of forensic statement analysis to differentiate genuine and false eyewitness in a highly stressful event[26]. The genuine eye witness showed interrogation stress while deceptive participants falsely claimed about interrogation stress. Forensic Statement Analysis raters unaware of the statement of eye witness concluded that genuine statements included more total word count and more unique words thus TTR was lower in genuine statement and the precision of forensic Statement Analysis was about 82%.

Reported Cases of India

The FSA has played a vital role in two of the very renowned cases of Arushi- Hemraj (16 May, 2008) murder case and Badaun rape case (27 May, 2014). This brought into light the utility and effectiveness of FSA among Indian criminal investigation approaches.

Furthermore, in a suspected murder case in Gujarat, polygraph examination and BEOS were used in examining five suspects. Meanwhile I.O. found a suicide note from the body of the victim. Document examiner had opined that the writing was not of the accused. Forensic statement analysis of the suicide note was carried out which helped the I.O. in establishing the link of suicide note to the accused person. High court of Gujarat considering the forensic statement analysis report and BEOS test results cancelled the bail of the accused[27].

Scope in Questioned Document Examination

The authenticity of a statement can be determined without knowing the case history. Limitation of handwriting sciences *viz.* tremors due to old age, neurological diseases, etc., can be overcome by using this method. Forgery is far easier to commit than deception, since, it is less mechanical. Thus, this technique does not leave any chance to let the deceptor to escape and help the expert in getting valuable clues in investigation.

Conclusion

Forensic Statement Analysis techniques thus can be proved valuable interrogative procedures in the preamble of law enforcement, criminal justice and security. FSA technique can be used in parallel with other interrogative techniques to affirm the forensic test results.

Acknowledgement

References

1. Kohnken G. and Steller M. (1988). The evaluation of the credibility of child witness statements in the German procedural system" in G. Davies and J. Drinkwater (Eds.), The child witness: Do the courts abuse children?. *Leicester, England: British Psy. Soc.,* 37–45.

2. Steller M. and Kohnken G. (1989). Criteria- based statement analysis. D.C. Raskin (Ed.). *Psychological methods in Criminal investigation and evidence,* 217-245.

3. Leo Richard A. (2008). Police interrogation and American justice. 351-352.

4. Picornell I. (2013). The Flexible Liar - A Strategy for deception detection in written witness statements. *ACFE European fraud Conference Proceeding*, Czech Republic. http://www.lesli-journal.org/ojs/index.php/lesli/article/view/2.

5. De Paulo B.M., Stone J.L. and Lassiter G.D. (1985). Deceiving and detecting deceit. B.R. Schenkler (Ed.). *The* self and social life. *New York: McGraw-Hill*, 323–370.

6. Raskin D.C. and Esplin P.W. (1991). Statement Validity Assessment: Interview procedures and content analysis of children's statements of sexual abuse. *Behavioral Assessment,* 13, 265–291.

7. Steller M. and Boychuk T. (1992). Children as witnesses in sexual abuse cases: Investigative interview and assessment techniques. H. Dent and R. Flin (Eds.). Children as witnesses *New York, NJ: John Wiley and Sons,* 47–73.

8. Yuille J.C. (1988). The systematic assessment of children's testimony. *Canadian Psychology,* 29, 247–262.

9. Undeutsch U. (1967). Beurteilung der Glaubhaftigkeit von Aussagen. [Veracity assessment of statements]. In U. Undeutsch (Ed.), Handbuch der Psychologie: *Forensische Psychologie*, 11, 26-181.

10. Undeutsch U. (1982). Statement reality analysis. A. Trankell (Ed.), Reconstructing the past: The role of psychologists in criminal trials. *Deventer, the Netherlands: Kluwer*, 27–56.

11. Trankell A. (1972). Reliability of evidence*. Stockholm, Beckman.*

12. Arntzen F. (1982). Die Situation der Forensischen Aussagenpsychologie in der Bundesrepubliek Deutschland. *[The state of forensic psychology in the Federal Republic of Germany]*. In A. Trankell (Ed.), Reconstructing the past: The role of psychologists in criminal trials. *Deventer, the Netherlands: Kluwer,*107-120.

13. Ruby C.L. and Brigham J.C. (1998). Can Criteria-Based Content Analysis distinguish between true and false statements of African-American speakers?. *Law and Human Behavior*, 22, 369–388.

14. Boychuk T. (1991). Criteria-based content analysis of children's statements about sexual abuse. Doctoral dissertation, Arizona State University, 52(6-A), 2272.

15. Anson D.A., Goldings S.L. and Gully K.J. (1993). Child Sexual Abuse Allegations: Reliability of Criteria-Based Content Analysis. *Law and Human Behavior*, 17, 331-34.

16. Vrij Aldert (2008). Detecting Lies and Deceit: Pitfalls and Opportunities. *Chichester, England: John Wiley and Sons*, 2, 290-291.

17. deTurck M.A. and Miller G.R. (1985). Deception and arousal: Isolating the behavioural correlates of deception. *Human Communication Research,* 12, 181-201.

18. Lamers Winkelman, Francien and Buffing Frank (1996). Children's Testimony in the Netherlands- A study of Statement Validity Analysis. *Criminal Justice and Behavior*, 23(2), 304-321.

19. Landry K. and Brigham J. (1992). The effect of training in Criteria-Based Content Analysis on the ability to detect deception in adults. Law *and Human Behaviour*, 16, 663-676.

20. Zapamiuk J., Yuille J.C. and Taylor S. (1993). Assessing the credibility of true and false statements. *Int. J. of Law and Psy.*

21. Kohnken G. (1985). Speech and deception of eyewitnesses: An information processing approach. in F. L. Denmark. *Socioecological psychology and the psychology of women*, *North Holland, Elsevier Science Publishers*, 4, 117-139.

22. Macdonald J.M. and Michaud D.L. (1987). The confession: Interrogation and criminal profiles for police officers, *Denver: Apache press.*

23. Hollien H. (1990). The acoustics of crime. 7th new science of forensic phonetics. *New York: Plenum Press.*

24. Carpenter R. (1990). The statistical profile of language behaviour with Machiavellian intent or while experiencing caution and avoiding self-incrimination. *Annals of the New York Academy of Sciences*, 606, 5-16.

25. Gudjonsson G. (1992). The psychology of interrogations, confessions, and rearming. *Chichester: John Wiley and Son.*

26. Charles A. Morgan III, Colwell Kevin and Gary A. Hazlett (2011). Efficacy of Forensic Statement Analysis in Distinguishing Truthful from Deceptive Eyewitness Accounts of Highly Stressful Events. *J Forensic Sci*, 56(5).

27. Vaya S.L. (2013). A Project Report submitted to Chief Forensic Scientist, DFS, MHA, New Delhi. DFS, Gandhinagar, National Resource Center for Forensic Psychology.