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VICTIMS AND POLYGRAPH EXAMINATIONS

By

Wilbur L. Hardy and Vickie T. Murphy

This document will address polygraph testing of victims and is designed to assist polygraph examiners or any other persons who have any type of oversight or supervision of polygraph applications or investigative programs. It is a logical and practical policy and protocol approach to polygraph examinations for victims.

Introduction to Terminology

Generally speaking, law enforcement personnel refer to persons involved in investigations as "subjects," "suspects," "victims," or "witnesses." Lawyers tend to use identifying terms such as "defendants" or the "accused," "clients," "victims," and "witnesses." Polygraph examiners and managers generally use all of these terms, and add another identifier such as "examinee" or "potential examinee."

Throughout this article, the use of the terms "generally," "most of the time," "perhaps," "maybe," "depends," and "normally," will be used frequently. Polygraph examiners and investigators know that what may be so this time, may not be so the next time; or what is true today, may not be true tomorrow. Flexibility is the key to success. This article will not dwell on what the polygraph examiners does since we are quite confident that with adequate training, if examiners excel in anything, they do well at explaining the polygraph techniques, procedures, and are capable of professionally conducting polygraph examinations. What this article will concentrate on, is that period of time and the actions taken prior to the polygraph examiner involvement in a case, as well as what is expected to be gained by administering the polygraph examination at a particular time, to a particular person.

An examinee may well be anyone involved in an investigation, in any capacity. In the majority of the time, when investigative plans or approaches are discussed, it may be of interest to administer a polygraph examination to a suspected or accused perpetrator of a crime against a sovereign, business or other person(s). When a victim or witness is suspect of being untruthful, we consider that a crime as well, and therefore, that person is suspected of committing a crime as "making a false complaint," "obstruction of justice," "misprision of a felony," "accessories either before or after the fact," or other statutes that may apply to a given situation. There is a difference, however. A victim is still a victim, until the facts and circumstances prove otherwise.

Wilbur T. Hardy is a member of the APA, president of the Maryland Polygraph Association, and a primary polygraph instructor at the Maryland Institute of Criminal Justice. Vickie T. Murphy is Secretary of the APA, past president of the Maryland Polygraph Association and assistant director of the Maryland Institute of Criminal Justice. For reprints write to Mr. Hardy at the Institute, 8424 Veterans Highway, Suite 3, Millersville, MD 21108.[Ed.]

General Discussion

We have heard the position that as polygraph examiners, we do not test victims; but instead, we test individuals who are suspected of making a false complaint to the police or falsely swearing of their testimony. Although this position is technically correct, that examinee's position is still that of a victim until proven to the contrary. We must fully understand the use of the term victim, as it is used throughout an investigation. For example, if a victim is examined and the results are that the examinee is not practicing deception, they become in fact, an unquestioned victim. If examined and found to be practicing deception without any additional information such as a confession being elicited, they are still a victim, although their credibility has now been called into question. If, however, an examinee is examined, found to be practicing deception and further confesses to a false complaint, the facts now change. The "alleged" incident did not occur at all and their position of being a victim no longer applies. If a suspect was named during that same investigation, that "suspect" now becomes the real "victim."

We have heard the position that in examining victims, they are treated exactly the same as any other examinee. This is further bolstered by the position that we are examining a person who is suspected of committing a crime. But is that the case, and is that really the true situation?

In order to answer that question, we have to go back to the time the incident was reported. Let us take an example of a complaint of a violent sexual attack which leaves the victim severely beaten and hospitalized. Major events occur at the onset of a reported crime that has a direct relationship as to whether or not the case is successfully concluded. Crime scene processing includes the search and collection of physical evidence, photographs, notes, sketches, interviews of those persons involved, and the questioning of potential witnesses and searching for potential suspects all play a very important part in the progression of any investigation. It is in these stages, each of which should be carried out meticulously, that investigation "hunches," "gut feelings," and investigative "leads" are developed on which to pursue the investigation. Unfortunately, it is also in these stages that investigative supervisors, upper management, government officials, the press, and the community at large begin clamoring for answers and results. Tension rises, tempers flare, and sometimes panic sets in. Often, some type of stop gap security measures are instituted as an effort to combat the unknown and to provide some sense of stability. These stop gap measures that are unplanned, cost the community or someone, additional funds, and in many instances become quite costly.

It is also these investigative processes and stages prior to the polygraph, that are crucial for polygraph examiners in conducting a proper examination. All too often, when the investigative process appears to be dragging or not proceeding at the speed expected, eyes turn toward utilization of the polygraph in an effort to produce quick results. In many instances, examiners are asked or directed by their supervisors to administer a polygraph examination when there are many outstanding leads that have not been developed, and when many evidentiary questions are still unanswered. Here, the department may try to shorten the investigation through means of a polygraph examination in lieu of an investigation. Unanswered questions may include evidence collected at the crime scene which is still pending laboratory examinations and

witnesses who have not been interviewed. In such cases, a complaint is made and an examiner is asked to test the person making the complaint or a potential suspect form the onset.

This departmental procedure, or what we refer to as a "premature request for a polygraph examination" produces a dilemma. Narrowing down questions to be asked of a potential suspect during a polygraph examination becomes risky when case facts are missing. Sometimes the preliminary facts are highly suspect or questionable. The old saying "garbage in, garbage out" as it relates to computers, also applies to the polygraph setting. In such a case, conducting polygraph examinations on a wrong set of facts or even an unknown set of case facts, may provide misleading or inconclusive results, causing an investigation to pursue a different track. One of the most dangerous consequences of a premature examination is that future opportunities in dealing with a suspect may be lost. It is probably safe to say, that law enforcement agencies may have only one chance at a criminal suspect taking a polygraph examination. And at that testing session, the polygraph examiner must be armed with all information available to assist in resolving the testing issues.

It is of absolute necessity that examiners, and especially those individuals within the department who provide oversight to the polygraph program, do not succumb to any pressures to prematurely utilize the polygraph technique. Instead, investigators should continue to work within the framework of a written policy which begins with conducting an investigation first, and if inconsistencies materialize, or if there are conflicts of information such as that of physical and testimonial evidence, then the proper protocol is to utilize the polygraph to assist in resolving conflicting issues. Employing the polygraph technique at the whim of those in charge, outside the framework of a written policy and at various times where there is no set criteria except curiosity, increases the risks of a mistake. And, conducting a polygraph examination outside the protocol of a written policy is equivalent to not having a policy at all.

Are Victims Treated Differently?

Regarding the question as to whether or not we treat sex crime victims differently: First, we must consider different scenarios often encountered in sex crime investigations. A brutalized victim suffering numerous injuries coming into contact with police through a good Samaritan who happened to cross paths and offers assistance is not an occurrence that happens every day. Another example would be of a victim with no apparent physical injuries who reports within hours, of having been forced to engage in sexual activities and identifies a suspect. Yet another example may be of a victim with no evidence of physical force reporting a forced sexual encounter occurring 2 to 3 months ago, who now finds herself pregnant and who may or may not be able to identify her assailant. These are just three examples we will use for illustrative purposes.

In each of the three scenarios, polygraph examinations may be considered, but only following an investigation and only if the facts and circumstances calls into question the testimony of the parties involved and conflicting information exists. Often, there are no witnesses

to these acts and sometimes, little if any physical evidence is available. Even in the absence of evidence, consider the impact of asking that victim to undergo a polygraph examination to verify that she is telling the truth at the onset of her report and without investigation. Is there any doubt that victim would be upset and possibly hostile when asked immediately to undergo a polygraph examination to verify her story? Probably not, and in our opinion, to do so at that time would be inappropriate. The primary use of the polygraph is to aid and resolve conflicting information and to determine truthfulness when credibility is called into question.

In our experience, victims cooperate fully when they understand why they are being asked to undergo a polygraph examination. When an investigation cannot corroborate a victim's account of what occurred, or when there is conflicting information such as the victim states the incident was forced and the suspect states sex was consensual, victims understand the dilemma when it is made known and explained to them. Subsequently, they can understand why the agency is asking them to undergo a polygraph examination. At this point, however, there are some subtle differences in the treatment of a victim, as perhaps there should be. Yes, the victim is advised of their individual rights against self-incrimination, the same way a suspect in a robbery is advised of their rights; however, the victim of a sex crime may be someone who has suffered physically and emotionally, and there needs to be some sensitivity on the part of the interviewer(s), until case facts prove to the contrary.

Question Formulation During Polygraph Testing of Sex Crime Victims

Once it is determined that the victim is to be tested and that the victim has further agreed to the polygraph examination, the examiner must decide on what type of questions to be asked. Several years back, conventional protocol for question formulation dictated that we ask questions such as:

Are you lying when you say that man forced you to have sex?

Did you lie when you said that man threatened you with a knife?

Did you lie when you said that man hit you?

The list could go on and on, but the idea was to ask the examinee if they lied. Although it is not accusatory to ask someone if they lied, the nature of posing such questions to a victim of a sex crime often led to some animosity and possibly anger or hostility towards the testing procedure.

In efforts to thwart those criticisms and to further the notion that the examination was to verify the victim's account of what happened, rephrasing the questions so that they were more direct and to the point seemed to be the logical thing to do and consequently, reduced confusion to questions that sometimes became too wordy:

Did that man force you to have sex?

Did that man threaten you with a knife?

Did that man hit you?

This protocol differed from question formulation principles in the past, and examiners reported exceptional results from gaining greater cooperation and developing better rapport with the victim. Consequently, more conclusive findings were obtained in the process.

Policy Considerations

Agencies desiring to develop a policy, or perhaps to bring a policy up-to-date, should consider the following criteria in conducting polygraph examinations in instances involving sex crimes. Establishing such criteria into a policy statement will go a long way towards thwarting the current combative environment with representatives from rights activists and state legislators.

1. Offer the suspect or accused a polygraph examination first and before testing a victim in all instances.

2. In the absence of any conflicting information, physical, testimonial or otherwise, polygraph examinations of sexual assault victims would be inappropriate.

3. If a suspect was identified by the victim and the suspect declined to verify or refute involvement, the alleged victim should not be requested to undergo a polygraph examination.

4. If there is no other physical evidence available and the suspect states contact was consensual, while the victim says it was not, request the suspect to take a polygraph examination. If the suspect declines to take the polygraph, consider requesting the victim to undergo a polygraph. If you do not, the investigation may be stalled with two conflicting accounts and nothing being resolved.

5. If a suspect has not been identified and information from independent sources indicates that the incident may not have occurred, it would be appropriate to request the victim to undergo a polygraph examination.

6. The examiner should prepare for the examination by reviewing investigative files, physical and medical reports, and statements of the victim, suspect and witnesses.

7. Consideration should be given to the time of scheduling a polygraph. A test should not be scheduled immediately following the reported crime or after a lengthy interrogation or interview.

8. The examiner should test on issues of the physical facts and stay away from legal or technical terms, as well as words (such as the word "rape") that may evoke a response just by the word itself.

9. Use relevant questions during the victim testing that will result in "yes" answers. These questions will be less accusatory, less confusing, and will result in faster and better rapport between the examiner and the examinee.

10. Examiners should continue to use control questions with a "no" response. Controls should also deal with the issue of lying, but should be clearly separated from the incident.

Remember, that once a policy is established, if polygraph examinations are conducted outside the scope of the policy due to politics or special considerations given to who may be involved, the policy is rendered ineffective and the consequences will probably be harsh.

Testing Other Types of Victims

Having covered testing sex crimes, the same type of testing may be accomplished with alleged victims of other incidents, *i.e.*, stolen vehicles, burglaries, property thefts from homes, losses of money, etc. In these incidents, however, there is generally some evidence available. If there is a theft of a vehicle, there are neighbors, friends, and relatives who have at least seen the vehicle to establish the fact that the victim did in fact have a particular type of vehicle. Frequently the vehicle is recovered; sometimes it may be burned or stripped. Insurance claims are involved, sometimes financial institutions are the real co-owners and there is evidence the "victim" is behind payments, etc. The same may be true about jewelry, cameras, furniture, etc. There are normally other persons who have seen such property and sometimes receipts or pictures are available depicting the fact that the property was present and existed. Certainly, if the investigation failed to identify anyone knowing the victim over the years as having possessed property that was reported stolen, there would be cause for questioning. And, when information and physical evidence conflicts or provides doubt that the incident occurred as reported, polygraph examinations are worthy of consideration. When conducting examinations in such situations, similar wording for relevant questions to elicit "yes" responses can be used:

Was your 1994 Chevrolet truck stolen as you said it was?

Were those rings stolen from your room?

Were those items missing from your shipment?

Utilization of the polygraph in this manner will maximize the efficiency of the polygraph as a valuable investigative tool.

Conclusions

Polygraph examinations as we know, are neither witchcraft nor are they a panacea. The polygraph technique is a valuable investigative tool and should not be a substitute for other types of investigations. How and when we apply the polygraph technique is something that we can control and we must do so with the utmost care, compassion and sensitivity. We must further remember that for many individual examinees, it will either be an experience of a lifetime, or an experience that will last a lifetime.

References

Geiselman, R. Edward & Fisher, Ronald P. (1986). Interviewing victims and witnesses of crime. *Polygraph* 15 (3).

Harbaugh, Carl. (1994). *Task Force Report on the Use of Polygraph Examinations for Victims of Sexual Crimes in Maryland.*

Hardy, Wilbur L. (1994). *Polygraph Victim Testing: A Research Update and New Recommendations.* American Polygraph Association Annual Seminar.

Saxton, George N.,. Kanin, Eugene J. and Brocki, Severine J. (1988). Unfounded rape complaints and the polygraph. *Polygraph*, 17(3), 97-105.

Tulley, Bryan, Ph.D. (1986). Special care questioning. *Polygraph*, 15(3), 211-220.

Widup, Richard Jr. (1994). *Administering Polygraph Examinations to Women Who Claim Sexual Assault.* American Polygraph Association Annual Seminar.

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THE NUMBERS TEST

The Effect of the Location of the Numbers Test on Examiner Decision Rates in Criminal Psychophysiological Detection of Deception Tests

By

Richard Widup and Gordon H. Barland, Ph.D.

The U.S. Army Criminal Investigation Command (USACIDC) conducted 251 psychophysiological detection of deception (PDD) examinations on suspects of criminal offenses in which a numbers (stim) test was conducted between the first and second tests of the main test series, as is their standard procedure. Another 231 examinations were conducted in which the numbers test was conducted prior to the first test of the main test series. Study results suggest the location of the numbers test had no effect on the inconclusive rate or the number of deception indicated (DI) and non deception indicated (NDI) decisions.

Some examiners advocate the use of a numbers test because it can be helpful in setting control questions and in post-test interrogations (*e.g.*, Barland, 1978; Raskin, 1988, p. 257). Other examiners believe that a numbers test, designed to impress an examinee with the psychophysiological detection of deception's (PDD) effectiveness of responses, increases the accuracy of the PDD tests (*e.g.*, Abrams, 1978). They reason that the innocent-but-nervous suspect is reassured no error will occur, thereby reducing concern for the relevant questions while increasing concern regarding the control questions. The guilty suspect, on the other hand, who may have thought the test could be beaten, becomes more concerned about the relevant questions. Because the numbers test is believe to enhance the differential reactivity of innocent and guilty suspects, the U.S. Army Criminal Investigative Command requires that it be used when administering PDD tests during the conduct of criminal investigations.

Special Agent Widup is Polygraph Program Manager for the Food and Drug Administration and Dr. Barland is with the Department of Defense Polygraph Institute. Both are members of the APA and Dr. Barland is an Associate Editor of *Polygraph*. For reprints write to Mr. Widup at 1791 Cruet Lane, Severn, MD 21144.

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Several studies support this view. Using 30 verified field cases, Senese (1976) had examiners analyze the physiological data recorded on the first test, which had been administered prior to a numbers test. A month later, the examiners analyzed the physiological data recorded on the second crime series test, which had been administered after a numbers test. He found that the inconclusive rate and error rate were lower following the numbers test. Unfortunately, this study did not include a control group which had not been administered a numbers test. It is therefore impossible to determine whether the increase in effectiveness was caused by the numbers test or by a reduction in the subjects' general level of anxiety as they became more familiar with the examination setting.

In a study designed to avoid that problem, Bradley and Janisse (1981) conducted three numbers tests prior to a control question test in a mock crime study. They manipulated the outcomes of the numbers tests so that the selected numbers were detected on none, one, two, or three of the tests. The accuracy of the subsequent control question test was generally proportional to the number of correctly called numbers tests.

However, most studies have found little, if any effect, of the numbers test on the accuracy of the PDD test. Gustafson and Orne (1963) found that administration of a numbers test had virtually no effect on the accuracy of subsequent tests. Barland and Raskin (1975) and Timm (1982) used similar designs in a mock crime paradigm. Some subjects were administered a numbers test that was correctly called; others had the numbers test deliberately miscalled to weaken their confidence in the PDD test; a control group had no numbers test administered. Both studies found the PDD tests to be equally effective with all three groups.

In some studies, a numbers test decreased the accuracy of subsequent tests. Ellson *et al.* (1952) conducted two numbers tests, one after the other. Subjects who were told that their first test had been correctly detected showed a decrease in accuracy on the second test. The accuracy decreased from 82% on the first test to 27% on the second test, compared to an accuracy of 70% on the second test for a control group who had not been informed about how they did on the first test. Gustafson and Orne (1963) found a similar effect with subjects who had a psychological need to be detected. When informed that their deception on the numbers test had been detected, they apparently lost interest and the subsequent test was less accurate.

Bradley and Janisse (1979) found an inverted U-shaped relationship between demonstrations of PDD test accuracy and the accuracy of a subsequent test. As predicted by Davis (1961), the accuracy of the PDD test decreased when subjects were led to believe that the PDD test was either extremely accurate or extremely inaccurate.

Kirby (1981) conducted one of two types of numbers tests between the first and second asking of the questions. He found that the accuracy of blind evaluations of the psychophysiological data following the numbers test was somewhat lower than the initial test. He suggested that the numbers test should perhaps not be used when the first test showed clearly truthful or deceptive patterns. However, his design failed to control another variable that might

have affected the results. It could be that the first test is more accurate regardless of whether a numbers test is employed or not.

Following the established convention (Decker, 1978), the Department of Defense Polygraph Institute (DoDPI) has taught that the numbers test, when used, is usually placed after the first test of the main PDD test series. The rationale is that if the first test shows no differentiation between relevant and control questions, the examiner should stimulate the examinee by any of several methods, one of which is a numbers (stim) test. Other examiners have suggested that, if the numbers test is so important, it should be the initial test conducted, to minimize the possibility of having an inconclusive test on the main test.

The purpose of this study is to determine whether the numbers test is more effective, in terms of reducing inconclusive results, when conducted before or after the first test of the main test series in a PDD examination of suspected criminals.

Procedure

Subjects

The subjects were all the suspects of at least one criminal offense that were examined by the U.S. Army Criminal Investigation Command (USACIDC) in the three months from 1 January to 1 April 1990, for a total of 482 persons. All were U.S. citizens, and included a mixture of U.S. Army personnel, Department of Army (DA) civil service employees, and their dependents. Information is not readily available regarding the proportion of subjects that during the conduct of the investigation, were suspects, victims, or witnesses; the types of crimes; the number of males and females, or their ages.

Examiners

There were 37 examiners, all of whom were trained at the Department of Defense Polygraph Institute (DoDPI) or its predecessor, the U.S. Army Polygraph School, and were certified as competent to administer PDD examinations by the USACIDC. Two of the examiners were female. The examiners' ages ranged from 31 to 47, with a mean of 41. Their experience as examiners ranged from 1 to 16 years, with a mean of 3 years. The number of specific issue examinations they had conducted at the outset of the study ranged from 1 to 1,549, with a mean of 245 criminal examinations. Following standard procedures, all examinations were reviewed by the CID Command Quality Control Office in Baltimore, MD.

Equipment

All examinations were conducted with field standard five-channel Lafayette and Stoelting polygraphs. Two respiratory channels, one electrodermal, and two cardiovascular channels were recorded.

Respiration was recorded by pneumatic bellows on the examinees' thorax and abdomen. One channel, usually the thoracic, was electronically amplified; the other used a mechanical pneumograph component.

The electrodermal channel recorded skin resistance by means of two stainless steel electrodes placed on the second and fourth fingers of the subject's hand, contralateral to the cardiovascular cuff. No electrolyte was used.

The cardiovascular channels consisted of a single cardiovascular cuff, usually located on the examinee's upper arm, that was inflated to about 70 mgHg, and provided input to both cardiovascular channels by means of a Y-shaped connector. One of the cardiovascular channels mechanically recorded the pressure changes; the other transduced and electronically amplified the signal prior to recording.

Procedure

The manner in which the numbers test was explained to the examinee was left to the discretion of the individual examiner. Although all examiners learned a standard procedure at the DoDPI, with experience they typically develop an individualized style of administration. No attempt was made to standardize the administration of the numbers test just for this study. A typical numbers test might be conducted as follows.

> John, I am now going to conduct a test in which I want you to answer 'No' to all of the questions. The main purpose of this test is to determine if you are physiologically capable of being administered a PDD examination today. The way in which this test will be conducted is that I want you now to pick a number between 3 and 8, that is not either 3 or 8. Now, have you picked your number? Good. Now, please tell me your number. (The examinee answers that his number is 5.)
>
> Okay, John. As I recall, you are right handed, correct? Now, I want you to take this pen, and with your left hand write the number you picked on this piece of paper, somewhere in the middle. Please write the number a couple of lines high. Now, I am going to surround the number you wrote with numbers that I will write. I am now going to place this paper on the wall in front of you.
>
> We will now go over the way in which this test will be conducted. Keep in mind that I want you to answer 'No' to all the questions. The test will go this way: Regarding the number you wrote on that piece of paper, did you write the number 2? (The examinee answers 'No.') Did you write the number 3? (Answer: No.) Did you write the number 4? (Answer: No.) Did you write the number 5? (Answer: No.)

John, what is that answer? (The subjects answers that the response was a lie. That's right, John; this is a lie. Now, both you and I know that you wrote the number 5, correct? In fact, I saw you take your left hand and write that number on that piece of paper. I want you to answer "No" nonetheless, and I will tell you why after this test is over. Did you write the number 6? (Answer: No.) Did you write the number 7? (Answer: No.) Did you write the number 8? (Answer: No.) Very good, John. Now I am going to start at the top of the list and go to the bottom, and I want you to follow along with me with your eyes, answering each question with a "No." John, did you have any questions? Now I will start the test.

At this point the test is administered. Immediately after the numbers test, the examiner shows the chart to the subject, pointing out the responses which occurred at the selected number. The examiner asks the subject what caused those responses. Most subjects reply that they do not know, whereupon the examiner replies, "John, these responses occurred when you lied about the number you wrote. Now, lying about a number is normally not a big thing, is it? But it was to you, John, because you saw how big those responses were. Now the other questions on the main test are more important, aren't they? John, you can imagine how large those responses would be if you are lying to me about any of those, can't you? That's the reason you need to be 100% truthful with me here today."

USACIDC examiners assigned to the USACIDC third and sixth regions, located in the United States, Puerto Rico, and Panama, conducted the numbers test before the first test of the main test series. Examiners from USACIDC's second and seventh regions, located in Korea and Europe, conducted the numbers test in the traditional location following the first crime issue test. All other parts of the examinations were conducted according to the standard USACIDC procedures. During the pretest interview the examiner advised the examinee of their rights; obtained their military, medical, and educational history; asked them to explain what they knew about the crime under investigation; and reviewed the test questions.

The PDD examination consisted of three repetitions of the test questions using either a zone comparison test (ZCT) or a modified general questions test (MGQT) format. The decision as to which examination procedure to use was left to the discretion of the examiner, who took into account the number of issues to be resolved and the nature of the case. In a few cases, where the examination results, after three tests were inconclusive, a fourth test was conducted. In one case in which the numbers test was the first test, the suspect confessed after the first crime test had been conducted.

Results

Of the 482 PDD examinations in this study, the results of the first series (3-4 crime issue tests) were inconclusive in 92 (19%) of the cases. Table 1 compares the PDD outcomes as a function of the location of the numbers test. When the numbers test was first, 21% of the exams were inconclusive, 65% were deception indicated (DI), and 14% were no deception indicated

(NDI). These compare to 17% inconclusive, 62% DI, and 21% NDI when the numbers test was conducted after the first crime question test.

Table 1

Frequency of Examiners' Trichotomous Decisions

	DI	NDI	INC	TOTAL
Numbers Test 1st	149	33	49	231
Numbers Test 2nd	156	52	43	251
Total:	305	85	92	482

Whenever we obtain two samples, we expect to see differences between the two sets of numbers. For example, if we were to repeat this study, we would expect that the next two samples would differ somewhat from the present samples. These chance differences are called sampling errors. The question thus arises as to whether the differences between the samples are so small that they are likely to be sampling errors, or whether they are so great that they are unlikely to have arisen simply by chance.

One way to determine the significance of the differences is to use the chi square ($\underline{X}^2$) test. Two chi square tests were applied. The first test assessed the significance of the difference in the inconclusive rates. To do this, the first two columns from Table 1 were combined, as shown in Table 2.

Table 2

Frequency of Examiners' Decisions versus Inconclusive Results

		DEC	INC	TOTAL
Numbers Test Location	First	182	49	231
	Second	208	43	251
Total:		390	92	482

Dec = number of decisions.
Inc = number of inconclusives.

The chi square test was not significant, $\underline{X}^2(1, \underline{N} = 482), = 1.05, \underline{p} = .31$, which means that there is no evidence that the location of the numbers test affected the inconclusive rate. The second chi square test looked at all of the data in Table 1. It also was not significant, $\underline{X}^2(2, \underline{N} = 482), = 3.98, \underline{p} = .14$. The location of the numbers test had no detectable effect on the number of DI, NDI, or inconclusive outcomes.

The above analysis used only the examiner's decisions at the end of the first series. It is possible that more detailed analysis of the numerical scores upon which the decisions were based could reveal differences caused by the location of the stim test. The Crimes Record Center (CRC) forwarded copies of the examiners' score sheets to the DoDPI for detailed analysis. We used only the ZCT score sheets for these additional analysis because of the greater likelihood that they would be single issue tests in which the subjects would be either lying to all test questions or to none of them.

We input 218 of the 221 sets of ZCT score sheets into the computer. The three remaining score sheets could not be located. To see if this subsample was different from the total population, we repeated the $\underline{X}^2$ test on the distribution of examiner decisions as a function of the location of the numbers test (Table 3). As before, there was no significant differences in the distribution of test outcomes as a function of whether the numbers test was before or after the first crime chart; $\underline{X}^2(2, \underline{N} = 218) = 2.76, \underline{p} = .25$.

Table 3

Frequency of Examiners' Decision on ZCT Examinations

		DI	NDI	INC	TOTAL
Numbers Test Location	First	92	11	27	130
	Second	53	14	21	88
Total:		145	25	48	218

We next proceeded to examine the numerical scores that underlie the decisions. Table 4 presents the numerical scores at the end of the third chart.

Table 4

Numerical Scores at End of Three Charts on ZCT Examinations

		DI	NDI	INC
Numbers Test Location	First	-9.3	11.8	3.1
	Second	-6.8	14.2	3.1

DI outcomes produced bigger scores when the numbers test was given first, whereas NDI outcomes had larger scores when the numbers test was given second. An analysis of variance found that these differences were not significant ($F = 1.03$, $p = .35$), meaning that the location of the numbers test had no apparent effect on the total numerical scores.

Did the numbers test affect the scores on the first crime series test? To answer this question, we looked at the scores at the end of the first test separately for DI and NDI subjects.

Table 5

Numerical Scores at End of First Crime Series Test

		DI	NDI
Numbers Test Location	Before	-3.0	3.2
	After	-1.8	4.4

DI subjects had a more deceptive first test when the numbers test had been administered first. This difference was significant (pooled variances $T = -2.274$, $p < .025$). Unfortunately, subjects called NDI also tended to produce a less truthful first test when the numbers test had been conducted beforehand, although this difference was not significant, meaning that it could have been caused by sampling error.

Discussion

The results indicate that the location of the numbers test had no apparent practical effect on the distribution of examiners' decisions. This, in turn, suggests that the location of the numbers test could reasonably be left to the examiner's discretion, as it does not seem to effect the inconclusive rate or the type of decision.

This finding must be viewed with some caution, however. The lack of ground truth and experimental control in real-life cases makes it difficult to draw firm conclusions, just as trying to generalize from laboratory findings to field conditions is also risky. Although no errors are known to have occurred, there is no way of knowing how many errors may have gone undetected. Moreover, possible differences in examiner expertise, the types of crimes being investigated, or the proportion of guilty and innocent suspects (as distinct from DI, NDI, and inconclusive outcomes) between the regions confound the interpretation of the analyses. A major confound (nonrandom assignment of examiners to the treatment condition) should be controlled in future studies.

The question of what effect the inclusion of the numbers test had on PDD accuracy and inconclusive rates could not be answered by this study, because one was administered on every test. It may be that a numbers test is a waste of time when conclusive results are being obtained, which is usually the case. The bulk of the literature indicates that it has little effect on the accuracy of the examination outcomes, at least in mock crime analogs. It is recommended that a field study, designed jointly by the DoDPI and the field user, be conducted to assess the advisability of requiring a numbers test in all criminal examinations.

References

Abrams, S. (1978). The utilization and effectiveness of the stimulation test. *Polygraph*, 7, 178-181.

Barland, G.H. (1978). An introduction to the number test. *Polygraph*, 7, 173-175.

Barland, G.H. & Honts, C.R. (1990). *A laboratory study of the validity of the ZCT: An executive study*. Fort McClellan, AL: Department of Defense Polygraph Institute.

Barland, G.H. & Raskin, D.C. (1975). An evaluation of field techniques in detection of deception. *Psychophysiology*, 12, 321-330.

Bradley, M.T. & Janisse, M.P. (1979). Pupil size and lie detection: The effect of certainty on detection. *Psychology*, 4, 33-39.

Bradley, M.T. & Janisse, M.P. (1981). Accuracy demonstrations, threat, and the detection of deception: Cardiovascular, electrodermal, and pupillary measures. *Psychophysiology*, 18, 307-315.

Decker, R.E. (1978). The Army stimulation test - A control procedure. *Polygraph*, 7, 176-177.

Ellson, D.G., Davis, R.C., Saltman, I.V., & Burke, C.J. (1952). *A report on research on detection of deception*. (DDC technical report ATI-168902). Bloomington, IN: Indiana University (Contract No. NONR-60NR 18011, Office of Naval Research).

Gustafson, L.A. & Orne, M.T. (1963). Effects of heightened motivation on the detection of deception. *Journal of Applied Psychology*, 47, 408-411.

Honts, C.R. & Barland, G.H. (1990). *A laboratory study of the validity of the MGQT: An executive summary.* Fort McClellan, AL: Department of Defense Polygraph Institute.

Kirby, S.L. (1991). The comparison of two stimulation tests and their effect on the polygraph technique. *Polygraph*, 10, 63-76.

Raskin, D.C. (Ed.) (1988). *Psychological methods in criminal investigation and evidence.* New York: Springer Publishing Co.

Senese, L.C. (1976). Accuracy of the polygraph technique with and without card test stimulation. *Journal of Police Science and Administration*, 4, 274-276. Reprinted (1978) in *Polygraph*, 7, 199-203.

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STATEMENT ANALYSIS

WHAT DO SUSPECTS' WORDS REALLY REVEAL?

By

Susan H. Adams, M.A.

Susan Smith stood outside her burgundy sedan and released the parking brake. The car plunged down the ramp into South Carolina's Long Lake, with her sons, Michael, 3, and Alexander, 14 months, strapped into their car seats. To cover her actions, Susan told police that the boys were abducted at gunpoint, launching a nationwide search for the victims and their abductor. During the investigation, Susan tearfully told reporters, "My children wanted me. They needed me. And now I can't help them."[1] Yet, the boys' father, David, who believed Susan's story, tried to reassure her by saying: "They're okay. They're going to be home soon."[2]

Police subsequently arrested Susan for the murder of her children. She was tried and convicted and is currently serving a life sentence in a South Carolina correctional institution.

Many investigators use a technique called "statement analysis" to discern the truth in statements like the ones given by Susan and David Smith. In statement analysis, investigators examine words, independent of case facts, to detect deception. They also remain alert for information omitted and question why the suspect may have done so. Investigators then analyze the clues unintentionally provided by a suspect and use this insight during the subsequent interview.

In the case of Susan Smith, by analyzing the statements made by the victims' parents, one could conclude that the father believed the boys were alive and the mother knew the children were dead. The key to this deduction lies in simple English grammar, specifically, verb tense. The father referred to the children in the present tense; the mother used the past tense. Of all times, when the "abducted" children really would need their mother, she speaks of them in the past tense, *e.g.*, "They needed me." The children could no longer want or need her because they were no longer alive.

Special Agent Adams teaches statement analysis as part of interviewing and interrogation courses at the FBI Academy. This article previously appeared in the *FBI Law Enforcement Bulletin* (October 1996) 65 (10), 12-20. For reprints write to S/A Adams at the FBI Academy, Quantico, VA 22135-0001. (Ed.)

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[1] *The Washington Post*, November 5, 1994, A15.

[2] *The Washington Post*, July 26, 1995, A7.

This article gives a brief overview of statement analysis. It examines four components of statement analysis--parts of speech (pronouns, nouns, and verbs), extraneous information, lack of conviction, and the balance of the statement.

A word of caution is warranted here. There is much more to statement analysis than what is provided in this article; space limitations preclude incorporating other statement analysis components, such as the remaining parts of speech and the numerous indicators of missing information.

Still, armed with the information presented in this article, investigators will be able to use these basic techniques to gain insight into a suspect prior to conducting an interview. By learning more about a suspect and determining whether that person is being deceptive, they have a much better chance of identifying the guilty party and gaining a confession.

The Technique

Statement analysis follows a two-step process. First, investigators determine what is typical of a truthful statement, referred to as the norm. They then look for any deviation from this norm. Truthful statements differ from fabricated ones in both content and quality.[3]

Although spoken words can be analyzed, investigators inexperienced in statement analysis will find it easier to begin by examining written statements. Investigators can make transcripts of oral statements. Or, even better, they can have suspects write a statement that details what they did from the time they woke up until the time they went to bed. This account provides a totally untainted version of the day's events and increases the validity of the analysis.

Statement analysis is an aid that can be used to obtain a confession; it is not an end in itself. Therefore, whenever possible, investigators should analyze the statement before interviewing the suspect.

Important Parts of Speech

Parts of speech form the foundation of statement analysis. To analyze a statement, investigators first need to examine the individual parts of speech, particularly pronouns, nouns,

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[3] Udo Undeutsch published this hypothesis in German in 1967. It also was reported in "The Development of Statement Reality Analysis," *Credibility Assessment*, ed. John C. Yuille (The Netherlands: Gluwer Academic Publishers, NATO ASI Series, 1989). The Germans generally are credited with the advancement of statement analysis for investigative purposes. German psychologists devised a system to assess the credibility of statements made by children in child abuse cases. Called criteria-based content analysis, the technique became mandated in German courts in 1954 in cases involving a disputed allegation of sexual abuse of a child.

and verbs, and to establish the norm for each. If a deviation from the norm appears, they then should ask, "Why?"

Pronouns

Pronouns are parts of speech that take the place of nouns. Common examples of personal pronouns include, I, me, you, he, she, we, they, and it. In statement analysis, particular attention should be given to the personal pronouns "I" and "we" and all possessive pronouns, such as my, our, your, his, her, etc.

The Pronoun "I"

Investigators have noted that truthful people give statements using the pronoun "I," which is first person, singular. Any deviation from this norm deserves close scrutiny, for it could be an indication that the person is not totally committed to the facts in the statement and, therefore, is not telling the whole truth.

The following written narrative begins with a clear commitment, then shows a definite lack of commitment:

> I got up at 7:00 when my alarm went off. I took a shower and got dressed. I decided to go out for breakfast. I went to the McDonald's on the corner. Met a man who lives nearby. Talked with him for a few minutes. I finished breakfast and drove to work.

The first four sentences of the statement match the norm of first person, singular--the use of the pronoun "I"; the next two sentences show deviation, because this pronoun is missing from the statement. What caused the writer to stop using the pronoun "I"?

Any change in the use of pronouns is significant, and at this point, investigators should realize that the statement now becomes devoid of personal involvement. Could there be tension between the writer and the man mentioned in the statement? During the interview, investigators should draw out specifics about this relationship to determine if this part of the narrative is really true or if the writer omitted information.

I versus We

Because using the first person, singular pronoun is the norm for truthful statements, investigators need to look for a lack of the pronoun "I" and overuse of the pronoun "we," which is first person, plural. The following version of a teenager's account when asked to relate what he did on Saturday evening illustrates the norm:

> I met four friends at the movie theater, watched a movie, then stopped to get something to eat with them. We had a few drinks at the bar on the way home. I stayed until just after midnight, I drove home. ...

The following version of the same account, when contrasted with the above statement indicates deviation from the norm:

> We all met at the movie theater, watched a movie, then stopped to get something to eat. We had a few drinks at the bar on the way home. We stayed until just after midnight. We each drove home. ...

Because the second statement contained only "we," instead of the expected norm, which uses mostly "I," the investigator should wonder why there is no individual involvement. Perhaps the teenager hopes to conceal something or at least to avoid sole responsibility for some act.

The Pronoun "We"

In speech and the written word, linguists consider the shortest way to say something as the easiest and clearest way to communicate. The pronoun "we" is a short, clear way to describe one's self and others after proper introduction have been made. "We" also denotes togetherness; it indicates a relationship between persons.

Omission of the pronoun "we" is significant, particularly when the individuals are spouses. In the following versions of an account of events given by a husband, the first statement indicates the norm; the second one denotes deviation:

> My wife and I were invited to a neighbor's 50th birthday party. We arrived at the party a little late. The party was still in full swing when we left for home.

> My wife and I were invited to a neighbor's 50th birthday party. My wife and I arrived at the party a little late. The party was still in full swing when my wife and I left for home.

The second statement reveals distance between the husband and his wife. Once the husband introduces his wife into the statement, using the pronoun "we" is the shortest way to communicate. Yet, the husband avoids this word. Why? Perhaps because there is no "togetherness" in the relationship.

If later that night the wife is murdered, and the husband, when recounting the day's activities, provides a statement devoid of the pronoun "we," investigators questioning the husband should focus on the couple's relationship. If the husband admits to marital problems, but vehemently denies any involvement in the death, investigators may clear him as a suspect, barring contrary evidence. However, if the husband responds that the couple was very close, investigators should be wary, because statement analysis reveals otherwise.

A shift from "they" to "we" also is significant, for it reveals personal involvement. In white-collar crime cases, the guilty person who denies complicity may find it difficult to keep the pronoun "we" out of a statement completely. In such instances, investigators need to search the entire written statement for "we." Then, during the interview, they should focus on the transaction described with "we." This pronoun indicates that the writer was involved.

Another example of this shift in the use of pronouns often can be found in alleged rape reports. In the following two statements taken from rape reports, the focus is on the pronoun "we":

He forced me into the woods,

versus

We went into the woods.

The first statement represents the norm. The second statement, which contains the pronoun "we," is a deviation from the norm.

Veteran rape investigators are alert to the sudden appearance of the pronoun "we" in a victim's statement. From their experience interviewing rape victims, they have normed the rape victim to use the pronouns "he" and "I," not the pronoun "we," to describe the assailant and herself.

Because the pronoun "we" denotes togetherness, the investigator reading "we" in an alleged rape statement should ask if the victim knew the assailant and if they were together before the rape occurred. If the victim denies this, there is reason to believe the statement is a fabrication.

In reports of an abduction, the use of the pronoun "we" also can indicate that the victim may not be telling the whole truth. For example, a young woman who reported that she had been abducted at a shopping center provides the following written statement:

> I parked and started getting out of my car when a white male about 200 pounds, 6 feet tall approached me and told me to get in the car or he would hurt me. He then got in the back. I got in the front and began to drive. He told me to drive west on the highway. He asked me if I had any money. I told him no. We drove for about an hour. During that hour, he hit me repeatedly on the right side of my face. When we got to the exit, I told him I had no gas. He got mad and told me to get off the exit. We went straight off the exit for about 4-5 miles. He told me to turn down the first street on my left. We went down it about 1/4 of a mile. He told me to stop. He opened the door, put both feet out, hit me, and took off walking quickly. He took off to the east of where I was parked. After that, I took off and lost sight of him.

Investigators experienced in statement analysis would question the truthfulness of the above declaration. A true abduction statement, when normed, includes phrases like "He forced me to drive ..." or "He made me get off at the exit ...l" Traumatized victims who are telling the truth do not use the pronoun "we" to describe assailants and themselves.

Investigators concluded that the above statement revealed deception. When interviewed, the woman subsequently confessed that no abduction occurred. She was, in fact, with a man she knew.

Possessive Pronouns

Possessive pronouns, *i.e.*, my, our, your, his, her, and their, reveal the attachment that the writer or speaker acknowledges toward a person or object. A suspect will change the pronoun, or drop the pronoun completely, when opting not to show possession or admit association with a particular object or person. For example, "I was cleaning my gun. I was putting my gun away. The gun discharged."

This person, wanting to disclaim ownership of the gun that discharged (either accidentally or intentionally), stopped using the possessive pronoun "my." It no longer was his gun, under his control; it became the gun.

Another example can be found in a written statement made by a person whose home burned to the ground:

> I left my house right after breakfast to join my friends at the track for the day. ... I drove back to my house, made a few phone calls, then went out to dinner with Stan Thompson. ... Stan dropped me off at my house around 10:00. After I changed my clothes I left the house to spend the night at my cousin Tom's. Around midnight we heard fire engines and got up to see what was going on.

In this account, after the writer consistently used the pronoun "my" to describe his house, he omitted the pronoun the last time it was mentioned. Was it because the house burned down, and it was no longer his house? If so, then this change should have occurred much later, after midnight, when the writer learned that the house was burning.

Based on the statements made, investigators should question why the switch in references occurred the last time the writer was in the house. Was it because the writer had spread accelerant on the floor of the house? Was the writer already giving up possession because he had set the fire? Just as arson investigators try to discover if valuable possessions have been removed from a house prior to a fire, those skilled in statement analysis look for the exact point at which the owner stops taking possession by failing to use the pronoun "my."

Nouns

Nouns denote persons, places, and things. Yet, nouns take on different meanings, depending on the individual.

When examining the words used by a suspect, the investigator needs to note any changes, because a "change of language reflects a change in reality."[4] If suspects substitute a different word after using one word consistently, they telegraph the fact that something in their lives has changed. Although language changes can occur with any part of speech, they are observed more frequently with nouns.

In a statement written by a suspect in a homicide investigation, a significant change in noun usage occurred. A young man shot his wife in the face with a shotgun. The woman died instantly, and the husband claimed the shooting was accidental. Investigators asked the man to write a statement of the events that occurred during the day of the shooting. The husband wrote a detailed statement, using the noun "wife" seven times to refer to his wife. He then wrote:

> ... I lost control of the gun. I sensed that the barrel was pointing in Louise's direction and I reacted by grabbing at the gun to get it back under control. When I did this the gun discharged. It went off once and I looked over and saw blood on Louise's face.

What caused the husband to start using "Louise," his wife's first name? Did this occur at a significant point in the narrative?

Prior to this point, investigators had normed the husband as using the noun "wife." When the spouse went to church with her husband, she was "my wife." When she later called to her husband, she was "my wife." But when the barrel of the gun was pointing in her direction and when there was blood on her face, two types of critical points in the statement, the spouse was no longer referred to as "my wife." She became Louise.

Investigators have determined that perpetrators find it nearly impossible to admit to harming a family member. The husband in this case could not admit that he had killed his wife. He removed the family relationship by substituting the name "Louise."

The husband also failed to introduce Louise to the reader. After using the noun "wife" seven times, the name "Louise" suddenly appears. The reader does not know for certain who Louise is. It only can be assumed that Louise is the wife, but the husband gave no proper introduction, such as "my wife, Louise."

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[4] Avinoam Sapir, *Scientific Content Analysis* (SCAN) (Phoenix, AZ): Laboratory for Scientific Interrogation, (1987), 52.

The norm for healthy relationships is a proper, clear introduction. But in tumultuous relationships, introductions often are confusing or missing completely. The lack of a proper introduction most likely indicates a poor relationship between the husband and his wife. Knowledge of this prior to the interview could assist investigators in uncovering the truth.

Verbs

Verbs express action, either in the past, present, or future. In statement analysis, the tense of the verb is of utmost importance. When analyzing statements, investigators need to concentrate on the tense of the verbs used. In a truthful statement, the use of the past tense is the norm, because by the time a person relates the event, it has already occurred.

For example, the following statement typifies the norm:

> It happened Saturday night. I went out on my back deck to water the plants. It was almost dark. A man ran out of the bushes. He came onto the deck, grabbed me and knocked me down.

The next statement shows deviation from the norm:

> It happened Saturday night. I went out on my back deck to water the plants. It was almost dark. A man runs out of the bushes. He comes onto the deck, grabs me and knocks me down.

The shift to present tense is significant, because events recalled from memory should be stated by using the past tense. The change to present tense could indicate deception. Knowing this, an investigator interviewing the victim of the second statement is forewarned that the account may be fabricated.

The use of past or present tense also is significant when referring to missing persons. In such cases, the norm is to describe the person in the present tense, as in , "I just pray that Jenny is all right."

When children are missing, in the parents' hearts and minds, the children remain alive, sometimes long after the point of reason. As evidenced in the Susan Smith case, use of past tense almost immediately after the alleged abduction showed a significant deviation from the norm.

The Mechanics of Statement Analysis:

Investigators can conduct a preliminary mechanical review of a written statement by completing the following steps:

1. **Pronouns:** Circle all pronouns; indicate missing pronouns in the margin
2. **Verbs:** Underline all changes in verb tense
3. **Nouns:** Underline changes in language
4. **Extraneous information:** Highlight information that does not answer the question asked, e.g., What happened? or What did you do since you got up this morning?
5. **Lack of conviction:** Bracket any words that indicate lack of conviction
6. **Balance of statement:** Divide statement into before, during, and after and check the balance

An example of a statement analyzed by an investigator appears below.

	The evening started out normally. (I) closed up after all the customers had left. (I) worked the late shift last night because (I) had an appointment during the day. (I) counted the money and filled out a deposit slip. (I) was the last one out so (I) set the alarm and locked	Before: 12 lines (54%)
missing I	the doors. ^ Drove to the First National Bank to make (my) deposit. (I) usually park right next to the night deposit	
missing I	box. ^ Got out of (my) car and headed to the deposit box. A tall man approaches, a white guy around 6"2", [(I) think.] He comes out of nowhere and tells (me) to drop the bag. Nothing like this has ever happened to (me) before. (I) am very careful about where (I) park and whether anyone is around. (I) dropped the bag and froze right where (I) was. The man grabbed the bag and ran into the shadows.	During: 9 lines (41%)
	[That's basically what happened.]	After: > 1 line (5%)

Extraneous Information

Extraneous information in a statement also can provide clues to deception. A truthful person with nothing to hide, when asked the question, "What happened?" will recount the events chronologically and concisely. Any information given that does not answer this question is extraneous.

People involved in crimes may feel the need to justify their actions. In such cases, the information in the statements will not follow a logical time frame or will skirt what really happened. They also may include more information than is necessary to tell the story. In such instances, investigators should scrutinize this extraneous information and question why this person felt the need to include it.

For example, in a homicide investigation involving a young woman shot by her husband, the husband told police officers that he was cleaning his gun when it accidentally discharged. Investigators then asked the husband to write a statement about his actions on the day he shot his wife. He provided a detailed statement, writing at length about the rust on his gun and a previous hunting trip. He failed, however, to describe fully his activities on this specific day. The amount of extraneous information prompted the investigator to view the husband as a suspect.

Lack of Conviction

Another important factor in statement analysis is a person's lack of conviction. When analyzing a statement, investigators should note if the person feigns a loss of memory by repeatedly inserting "I don't remember" or "I can't recall."

They also should look to see if the person hedges during the narrative by using such phrases as "I think," "I believe," "to the best of my knowledge," or "kind of." These phrases, also called qualifiers, serve to temper the action about to be described, thereby discounting the message before it even is transmitted.[5] Clearly, the person giving the statement is avoiding commitment, and warning bells should ring in the investigator's ears.

The following is a transcript of an oral statement of a college student who reported that a man broke into her apartment at 3:30 a.m. and raped her. A statement regarding such a traumatic experience should brim with conviction, which this statement clearly lacks.

> He grabbed me and held a knife to my throat. And when I woke up and I was, I mean I was really asleep and I didn't know what was going on, and I kind of you know I was scared and I kind of startled when I woke up. You know, You know I was startled and he, he told, he kept telling me to shut up and he asked me if I could feel the knife.

It is important to consider the phrase, "I kind of startled when I woke up." Certainly, this is not a normal reaction for a woman who awakens in the middle of the night to see an unknown man at her bed and to feel a knife at her throat. The word "terrified" more appropriately comes

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[5] Walter Weintrab, *Verbal Behavior in Everyday Life* (New York, NY: Springer Publishing Co., 1989), 13.

to mind. Using the words "kind of startled" shows a gross deviation from the expected normal reaction of terror.

Another example of lack of conviction can be found in a written statement given by a relative of a woman who mysteriously disappeared. Investigators asked the missing woman's sister-in-law to recount the activities that took place on the weekend of the disappearance. After claiming memory lapses and showing a general lack of specificity, the sister-in-law ended her statement with:

> ... that was about it. These were my actions on the weekend to the best I can recall.

Any investigator reading the above statement should seriously question whether the events were described accurately and completely.

Statement Analysis in Specific Crimes

To conduct statement analysis for a specific crime, investigators first should determine what is the norm. Any deviations from this norm may indicate involvement in the crime.

Crime	*Norm*	*What to Look For*	*Deviation from Norm*
Missing Persons:	"Jenny is such a wonderful daughter."	A verb in past tense soon after the disappearance	"Jenny was such a wonderful daughter."
Arson:	"...drove back to my house...went out for dinner, returning to my house...left my house...."	The lack of possessive pronouns *before* property is burned	"...drove back to my house went out for dinner, returning to my house...left the house...."
White-collar Crime:	"...they invested...they purchasecd...they financed...."	The use of the word "we" to describe transaction	"...they invested...they purchased...we financed...."
Abduction, Rape:	"He forced me into the car...."	The use of the word "we" for assailant and self and the language used ("got" versus "forced")	"We got into the car...."

Balance of the Statement

A statement given by a suspect or an alleged victim should be examined by investigators for overall balance. Statements should be more than just a series of details. They need to sound like an account of the event.

A truthful statement has three parts. The first part details what was going on before the event occurred; it places the event in context. The second part describes the occurrence itself, *i.e.*, what happened during the theft, the rape, the fire, etc. The last part tells what occurred after the event, including actions and emotions, and should be at least as long as the first part.

The more balanced the three parts of the statement, the greater the probability that the statement is true.[6] A statement containing the same number of lines in the before, during, and after parts, *i.e.*, 33 1/3 percent in each part, indicates truth, although some degree of variation from perfect balance can be expected.

If any part of a statement is incomplete or missing altogether, then the statement is probably false. The following breakdown of a statement written by a man whose home burned shows a deviation too great from the balanced norm. The man provided a 56-line account of what happened that day, divided as follows:

BEFORE the fire: 33 lines - 59.0%

DURING the fire: 16 lines - 28.5%

AFTER the fire: 7 lines - 12.5%

Investigators concluded that the above distribution indicates deception, because the three parts of the statement was clearly out of balance. The "before" section is too long and the "after" section is too short.

Examination of the statement revealed that in the first part, the writer provided too much information totally unrelated to the fire. This signaled the investigators to ask themselves, "Is the writer stalling or trying to justify his actions?"

Also, the statement contained sparse information on what happened after the fire and lacked any indication of emotion. There was no sign of anger, shock, or sense of loss. The writer, who showed no concern about the consequences of the fire, ultimately confessed to setting it.

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[6] Don Rabon, *Investigative Discourse Analysis* (Durham, NC: Carolina Academic Press, 1994), 17.

Conclusion

Statements contain a wealth of information far beyond what the suspect or alleged victim intends to communicate. Fortunately, investigators can use this information to their benefit.

Statement analysis provides investigators with vital background data and details about relationships to explore during the interview process. It also can determine whether the intent of the statement is to convey or to convince, that is, to convey the truth or to convince through deception.[7] Armed with this knowledge, investigators can enter the interview room with increased confidence to identify the perpetrator and gain a confession.

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[7] *Ibid.*, 35.

NOTE ON STATEMENT ANALYSIS ARTICLE

In Volume 25, Number 4, 1996 issue of the *Polygraph* article entitled, "Statement Analysis: What do Suspects' Words Really Reveal?:" by Susan Adams, the following author's note was inadvertently omitted:

> The author gratefully acknowledges Avinoam Sapir, Laboratory for Scientific Interrogation, whose extensive development and work in the field of statement analysis made this article possible. The author also gratefully acknowledges Don Rabon and his statement analysis book for law enforcement officers, *Investigative Discourse Analysis.*

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THE USE OF POLYGRAPH EXAMINATIONS

FOR VICTIMS OF SEX CRIMES IN MARYLAND, 1993-1996

By

Vickie T. Murphy

Each year since 1993, the state of Maryland has proposed anti-polygraph legislation to ban polygraph testing of victims of sex crimes. Polygraph testing of sex crime victims has become a highly controversial issue and the trend to outlaw polygraph testing of victims has spread nationwide. The President's Task Force on Victims of Crime (1982) recommended that procedures that reflect routine distrust of complaints be banned, and since the prospect of taking a routine polygraph to check a victim's credibility serves as a deterrent to reporting crimes and pressing charges, many groups have sought to ban such practice on a nationwide basis. Although for the past three years such legislation has been defeated in Maryland, other states such as New York, have not been as successful in recent decisions.

This article is a summary of the issues brought up in Maryland, and is being prepared to educate polygraph examiners, state polygraph associations, law enforcement agencies, investigators and their supervisors, legislators, rights activists, and victims. It is a reminder of what has occurred in Maryland over the past three years, and it is a warning for other states and their respective law enforcement agencies, to take heed of what is needed to prevent similar occurrences or abuses.

Background of Testing Sex Crime Victims in Maryland

Maryland's battle began in 1993, after several rape victims complained about the manner in which they were treated by law enforcement officers and upon learning that several victims had been subjected to polygraph examinations before a proper criminal investigation was conducted. Legislation was submitted which prevented a police officer, member of the Department, or other person acting upon the authority of the Commissioner; to request or require any victim or complaining witness in a case involving an alleged sex crime, including any crime under sections 11F, 35A, 335, 335A and 462-464 of Article 27, Crimes and Punishments of the *Annotated Code of Maryland*, as amended, to submit to a polygraph examination or any form of a mechanical or electrical lie detector examination.

Vickie T. Murphy is Secretary of the American Polygraph Association, past president of the Maryland Polygraph Association, and Assistant Director of the Maryland Institute of Criminal Justice. For reprints, write to Mrs. Murphy at the Institute, 8424 Veterans Highway, Suite 3, Millersville, MD 21108. [Ed.]

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Ad-hoc discussion groups arose and eventually the Governor of Maryland formed a Task Force to conduct extensive research on the issues involved in polygraph testing of sex crime victims. In general, the complaints were not directed towards the polygraph examiner per se, but were directed towards the investigators and how they treated the victims, such as in instances involving hostile questioning and doubts of credibility.

The Task Force decided that a survey would be taken from all municipal and county police departments, Maryland State Police, Sheriff's Offices and all State's Attorney Offices, to determine which agencies had polygraphs, which agencies had policies and procedures on polygraph testing in general, and which agencies had policies and procedures specifically relating to sex crime investigations.

Results of the Task Force Survey

Of the total surveys mailed (114), there was a 60% return rate. Of the total response, 20% of the reporting agencies had polygraphs and of those same agencies, 64% had policies on polygraph testing.

Of the total responses, only 25% of the agencies reported having policies specifically for sex crime investigations. Only one agency provided specific polygraph data relating to sex and age, the number of individuals refusing to take polygraph examinations, and the number of sexual assault cases in which victims have refused to take polygraph examinations. There were only four other agencies in Maryland that had any data relating to the number of sexual assault victims subjected to polygraph examinations.

Needless to say, it did not take the Task Force long to determine that there was a lack of standardization of departmental policy and procedures regarding the use of polygraph examinations of sexual assault victims, and that it was a problem that was widespread throughout law enforcement communities in Maryland.

During January 1994, a subsequent meeting was held by the Task Force, Ad-hoc Committee, law enforcement agencies, polygraph examiners and representatives of the Maryland Polygraph Association in an attempt to determine the definition of a "victim," whether or not there was a need for legislation for the use of polygraphs on victims of sex crimes, and whether or not there was a need for a model polygraph policy. As a result of that meeting, polygraph examiners requested the assistance of victim advocacy groups whereby the examiners requested continued training regarding specific issues relating to sexual assault victims. Examiners also emphasized that the polygraph was an investigative tool and that the polygraph should be used during the end of the investigative process, as opposed to the beginning of the investigation. Polygraph examiners further expressed the need for legislation regarding Certification and cited that although the Maryland Polygraph Association adheres to the American Polygraph Association Code of Standards and Principles of Practice, not all polygraph examiners in Maryland were members of the MPA or APA.

The Ad-hoc Committee and law enforcement representatives agreed that legislation was not desired at that time, and it was further concluded during the meeting that the real issues is what occurs before a victim gets to the polygraph examination where the investigative process in which untrained officers from small agencies which may lack resources, rely on the polygraph as a short cut, rather than conduct a proper investigation.

Although Senate Bill 26 was defeated in the Senate Judicial Proceedings Committee, a modified version was submitted in the House to provide that a

> person involved in the investigation or prosecution of a sexual offense may not request that the witness complainant of the offense submit to a polygraph examination unless the polygraph examination is: 1) performed by a polygraph examiner certified in accordance with standards established by the Maryland Police Training Commission; and 2) administered in accordance with regulations adopted by the Superintendent of the Maryland State Police in accordance with Title 10, Subtitle 1 of the State Government Article.

The modification of the bill was further tabled because it posed possible conflicts with the authority of the Maryland Police and Correction Training Commissions which are specific to law enforcement and corrections; that many polygraph examiners are not law enforcement examiners, and that civilian examiners are often utilized by defense attorneys. There was concern about legislation and budgetary needs if the training standards moved into the realm of civilian examiners, and it was further concluded that the problem with the polygraph examination of victims lies not with the examiner, but with the investigating official, which includes the investigating officers and prosecutors.

It was further concluded that there was a need for a model polygraph policy which would provide assurances that sexual assault victims would not be requested to take a polygraph examination unless there was reasonable suspicion of untruthfulness, determined through an investigation of the allegations; that the examinations would be on a volunteer basis; that *Miranda* warnings be given; and that the individual be offered the opportunity to obtain an attorney. It was also noted that there was a general lack of training in the understanding and the use of the polygraph within the State's Attorney Offices due to the lack of consistent policy.

A final meeting was held at the Maryland Institute of Criminal Justice, an accredited polygraph training facility, during March 1994, where members of the Maryland Polygraph Association were informed of the results of the Task Force Survey, along with the MPA making additional recommendations.

Recommendations of the Maryland Polygraph Association

1. Operational procedures: That any polygraph certification or licensing program should be administered by an agency having statewide authority, which shall establish standard

operating procedures for polygraph testing, report retention and report distribution, and that ethical standards will be similar to those established by the American Polygraph Association.

2. Certification Board: The lead agency shall appoint a permanent Chairman and that the Board shall consist of Certified or licensed polygraph examiners from the government, private sector, and law enforcement community. Law enforcement examiners will be a variety from state, municipal, and county agencies. The Board will re-certify, de-certify and act as a central repository for complaints against polygraph examiners.

3. Training: The examiner must be a graduate of a school accredited by the American Polygraph Association or a polygraph school approved by the lead agency administering the Maryland polygraph regulatory program.

4. Continuing Education: To maintain Certification, the examiner must attend at least 24 hours of in-service training every 3 (three) years. The training must be an American Polygraph Association accredited school or training approved by the polygraph regulatory agency. The training must be related to the polygraph field. Training should also include sensitivity training for all examiners and investigators handling victims of sexual assault.

5. In-Service Polygraph Training: Law enforcement agencies should be mandated to provide funding for polygraph in-service training for their polygraph examiners. (Agencies with polygraph recommending retraining have ignored their own policy because of a lack of funding.)

6. Cost: Private sector polygraph examiners shall bear the cost of obtaining notarized reference statements, fingerprint cards, photo, and other expenses associated with a background investigation. The background investigation may be waived for government and law enforcement officers provided they are in good standing with the respective agency.

7. Fee: The certification fee should not exceed $50.00 and may be waived for law enforcement and government examiners. Law enforcement and government examiners conducting private polygraph examinations must comply with established polygraph regulations and pay certification or licensing costs.

In addition, the Maryland Polygraph Association submitted a copy of the Vermont Polygraph Licensing Law for utilization as a model and further advised the Task Force that the American Polygraph Association was currently formulating a Model Polygraph Certification Program for Continuing Education.

Maryland Task Force Recommendations

The Task Force encourages all law enforcement agencies, including the State's Attorneys Offices, to move ahead with the implementation of the following recommendations for Maryland.

While implementation is encouraged on a voluntary basis, it is realized that legislative action may be necessary to assure implementation, compliance, and accountability.

1. Law enforcement agencies should adopt and implement the model policy developed by the Task Force.

2. Maryland should enact legislation requiring licensing and certification of polygraph examiners modeled after legislation from the State of Vermont.

3. Regular training should be afforded State's Attorneys' personnel in the use of polygraph examinations and sensitivity issues relating to crime victims, particularly those victims of sexual assault.

4. The Maryland Police Training Commission should monitor training on sexual assault and sensitivity issues to assure compliance with their mandate.

5. All law enforcement agencies, including State's Attorneys, should maintain records and statistics of all individuals offered polygraph examinations, the number who submit to the examination, the number who refuse the examination, the reason for the examination, the examination results, and the final case disposition.

Maryland Task Force Recommended Model Polygraph Policy

Background

The polygraph is the most popular deception test utilized by police agencies as a part of their investigative process. The polygraph examination is conducted on a delicate scientific instrument which simultaneously records tracings of several different physical phenomena consisting of respiratory changes, pulse rates, and galvanic skin reflex.[sic]

The polygraph is designed to detect the emotional reactions of an individual being examined when that individual is presented with a series of pertinent questions by a highly skilled and trained examiner. The use of the polygraph is recognized as a useful tool in the investigation of criminal acts. It is also recognized that the results of the examination are contingent upon several factors. Among the most important are the competency of the examiner and the physiological response of the individual being questioned.

The polygraph is only an aid and cannot be substituted for thorough investigation designed to secure competent evidence to prove or disprove an offense.

Policy

Polygraph examinations will only be utilized in criminal investigations when all reasonable investigative techniques have been exhausted. The polygraph may be used to question suspects, victims, and witnesses, but only when the answers to the questions being asked of such individuals cannot be resolved through normal and standard investigative methodology.

Procedures

Requests for polygraph examinations must be in writing and submitted to the criminal investigation supervisor or polygraph examiner for evaluation. A review of the request will be made to as the usefulness of the polygraph on a case-by-case basis. If approved, the criminal investigation supervisor will forward the request for examination to the Polygraph Unit examiner, after which time the officer requesting the polygraph examination will be contacted by the polygraph examiner.

The officer requesting the examination will meet with the polygraph examiner during which time the facts of the case will be discussed in full. The polygraph examiner will be provided with any and all documents, reports, or other data as he/she may deem necessary. The decision of the polygraph examiner as to the suitability of the case and individual for examination will be final.

The officer requesting the examination and the polygraph examiner will agree upon the questions to be asked.

The investigator at the direction of the polygraph examiner will notify the person to be examined of the date, place and time of the examination.

Individuals with certain conditions are not conducive to successful testing and will generally be deemed unsuitable. Examples of these conditions are: Children under the age of thirteen (13); elderly persons, individuals with medical problems, individuals with mental illness, tired or intoxicated individuals, individuals who are emotionally distraught, or individuals who have just been interrogated.

In the event that a prospective examinee is unwilling to submit to a polygraph examination and, in the opinion of the investigating officer, a comprehensive explanation of the polygraph process would alleviate any reservations on the part of the prospective examinee, and thereby lead to a valid consent, the necessary arrangements for such an explanation would be made through the polygraph examiner.

Scheduling Procedures

Examinations should not be scheduled for victims or suspects immediately following the offense or immediately following a lengthy interrogation, and individuals should have a minimum of 48 hours prior notice of the examination. Preferably the examination will be scheduled when the individual is not likely to be tired or rushed.

Examination Procedures

The polygraph examiner will advise the individual being examined that the polygraph examination is strictly voluntary and that the individual may terminate the examination at any time. The individual shall be advised that the results of the examination will be shared with the investigating officer and prosecuting attorney; and, if the individual fails the examination and subsequent evidence corroborates the examination, the individual may be charged with a false report of a crime.

The polygraph examiner should advise the individual of *Miranda* rights if the person is in police custody or under arrest at the time of the examination, and the individual must sign a Waiver of Rights form prior to the examination.

The polygraph examiner will advise the person being examined if any audio or video recording is being utilized during the test.

Prior to the administration of the examination, the examiner shall provide the examinee with an explanation of the nature of the polygraph examination, and give complete instructions regarding the required conduct of the examinee during the examination.

The polygraph will be administered only after the examiner has determined that the person being examined is in proper physical and mental condition to take the examination.

The examiner shall be concerned only with the detection of deception related to those issues that are relevant to the investigation.

Polygraph charts shall be interpreted by the examiner conducting the examination, and whenever possible, will be reviewed by one or more additional examiners.

The examiner shall complete a "personal data sheet" on every individual requested to submit to an examination. This form shall include the name and assignment of the person requesting the examination, the type of case being investigated, special instructions, the results of the examination, and any statements made by the examine.

Polygraph charts shall not be made part of the investigative file, but shall be filed in the Polygraph Unit.

Examination Results

The polygraph examiner shall restrict the results of the polygraph to those persons with a need to know and shall supply only that information which pertains to the particular case or issue under investigation. However, in the event the person confesses to other crimes or violations of the law, the examiner shall be duty bound to forward that additional information to the appropriate authorities.

The examiner shall notify the investigating officer immediately of any incriminating statements made by the examinee during the course of the examination. At that time the examinee may be forwarded to the investigating officer for the purpose of taking a statement.

Persons Not to be Tested on the Polygraph

1. No person will be examined at the request of another organization, unless the polygraph examiner has notified his superiors of that specific request and issues.

2. Persons under arrest will not be polygraphed unless they have signed a form agreeing to abide by the final decision of the polygraph examiner. Normally, these individuals will be polygraphed at the request of the State's Attorney.

3. Juveniles will not be tested unless at least one custodial parent, or guardian with authority to do so, has signed a permission form, and/or a judge, who has jurisdiction over the minor, has issued a court order.

4. Persons with serious heart conditions will not be subjected to a polygraph examination. A person will be regarded as having a serious heart condition when the individual states they have had treatment for cardiac arrest.

5. Pregnant women will not be polygraphed, regardless of the term of pregnancy, unless the following conditions are met:

   a. The woman has reached her first trimester in that pregnancy, and,
   b. She submits a signed letter from her attending physician stating that she may submit to a polygraph examination, and,
   c. She signs a notarized affidavit relieving the agency of any civil liability.

6. Victims of rape/sex crimes will not be polygraphed unless there is substantial evidence obtained from the investigation which indicates that the alleged offense may be a false report of a crime. Victims of rape/sex crimes should not be subjected to polygraph examinations until after they have been visited by crisis workers trained in sexual assault, if these service providers are available.

Requirements of Polygraph Examiners

Polygraph examiners must successfully graduate from a polygraph institution which meets the standards accepted by the American Polygraph Association.

Examiners must have a minimum of three (3) years investigative experience. Preference will be given to candidates with a Bachelor's Degree or equivalence of college credits or investigative training.

Complete a minimum of twenty-four (24) hours in-service training every three (3) years relating to polygraph examination techniques and victim sensitivity issues.

Conclusions

Although it was clearly established that the issues and problems that occurred in polygraph testing victims of sex crimes in Maryland, occurred as a result of what happens prior to the polygraph test, this author is not naive in assuming that there may never be similar abuses by the examiner. In the research undertaken, there are several important issues that the polygraph examiner, whether from Maryland or any other state, should take into consideration when testing victims of sex crimes. These issues include:

* that the polygraph should serve as an aid, not a substitution for investigation

* that a victim of a sex crime would not be polygraphed unless there is substantial evidence obtained from the investigation which indicates that the alleged offense may be a false report of a crime

* that the decision of the polygraph examiner as to the suitability of the case and individual will be final

* that the polygraph is voluntary and should not be conducted without the subject's written voluntary consent and approval

* when testing juveniles, there should be written consent by a parent or legal guardian

* that no examination should be given when there is reason to believe that consent is not voluntary

* that the examination should be ceased immediately when requested so by the examinee

* that the subject should be advised of any video or audio taping.

Furthermore, examiners are urged to received accredited polygraph training, join professional associations in the polygraph field, as well as receive continuing education credits which should include victim sensitivity issues such as dealing with the victim's doubts, issues of shame, embarrassment, frustration, helplessness, lack of control, and in some cases, an appearance of a lack of cooperation during the investigation. Examinations should not be scheduled immediately after the report of a crime or after an interrogation. Examiners should participate in quality control or peer review. Having other examiners look at polygraph charts helps to prevent costly mistakes. Policies should be written, developed, observed and just as important, those policies should be followed. Research has indicated that it may be better to word relevant questions for a "yes" response. Such wording may cause less confusing questions and further assist in reducing inconclusive results. Research has also shown that there is no negative effect on results among the influence of race or gender, either with the examiner or the subject being tested. Examiners and investigators alike should remember that just because a victim chooses not to take a polygraph, it does not mean that a sex crime did not occur. The same holds true if the results are inconclusive. And above all, it should always be remembered that a victim is always a victim until proven otherwise.

References

Adang, Steven R. (1995). The use of polygraph with children. *Polygraph*, 24(4), 259-274.

Ansley, Norman (1989). Management and supervision of police polygraph operations; A bibliography. *Polygraph*, 18(3).

Ansley, Norman (1989). Resource materials on the polygraph and child abuse cases. *Polygraph*, 18(1), 51-53.

Buckley, Joseph P. and Senese, Louis C. (1991). The influence of race and gender on blind polygraph chart analyses. *Polygraph*, 20(4), 247-258.

Buckley, Joseph P. and Senese, Louis C. (1991). The influence of race and gender on specific issue polygraph examinations. *Polygraph*, 20(4), 229-237.

Busch, Catherine, Ph.D. (1995). *Critique of Polygraph Reliability and Validity and Recommendations for Developing a Relationship Between Your Local Sexual Assault Center and Your Local Law Enforcement Agencies.* Maryland Coalition Against Sexual Assault, Howard County Assault Center, Inc., Columbia, MD.

Geiselman, R. Edward & Fisher, Ronald P. (1986). Interviewing victims and witnesses of crime. *Polygraph*, 15(3).

Harbaugh, Carl (1994). *Task Force Report on the Use of Polygraph Examinations for Victims of Sexual Crimes in Maryland.*

Hardy, Wilbur L. (1994). *Polygraph Victim Testing: A Research Update and New Recommendations.* American Polygraph Association Annual Seminar.

Jayne, Brian C. (1995). Child sexual abuse investigations. *Polygraph*, 24(1), 34-47.

National Policy Center of the International Association of Chiefs of Police (1996). Polygraph Examinations: Model Policy. *Polygraph*, 25(2), 128-133.

Polygraph: Issues and Answers, revised edition (1996). Reprinted in *Polygraph*, 25(2), 134-146.

Saxton, George N., Kanin, Eugene J., and Brocki, Severine J. (1988). Unfounded rape complaints and the polygraph. *Polygraph*, 17(3), 97-105.

Spaulding, Lt. William (1994). Interviewing child victims of sexual exploitation. *Polygraph* 23(4), 280-323.

Tulley, Bryan, Ph.D. (1986). Special care questioning. *Polygraph*, 15(3), 211-220.

Velon, Robert C. (1990). Polygraph results and behavior analysis in fifteen child abuse cases. *Polygraph*, 19(2),127-130.

Widup, Richard, Jr. (1994). *Administering Polygraph Examinations to Women Who Claim Sexual Assault.* American Polygraph Association Annual Seminar.

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THE STIMULUS TEST - AN ANNOTATED BIBLIOGRAPHY

Compiled and Annotated by

Norman Ansley

Stimulus tests have been part of polygraph testing since the 1930's, perhaps before that. The test was used because it was believed to serve the psychological purpose of reducing fear among the truthful and stimulating the deceptive. For the examiner using a relevant-irrelevant test it was also a form of control procedure. If the examinee responded to the number and not at all or less to the relevant question, this was an indication of truthfulness (Inbau 1942).[1] Because of the relatively inferior instruments of the time, giving a stimulation test before the first relevant examination gave examiners the opportunity to make adjustments to achieve optimum recordings. Inbau's 1942 book is about the RI examinations, and he mentions the use of a card control test as a means of determining unresponsiveness. If the card control test was given only if the first relevant chart showed a lack of responsiveness, then that could account for its use after the first relevant chart. In the 1942 book Inbau also suggests a known lie be introduced, if you have one, in the third or fourth chart, for comparison and to show the examinee for interrogation. Inbau mentions the card control test again in his 2nd edition in 1948, which also incorporated the John Reid control question test. In the 3rd edition, 1953, now showing John E. Reid as co-author, the card control test is regularly administered after the first relevant chart. Examiners have been debating the use of the stimulus test since the 1940's. Those favoring its use, have been debating whether it should be before or after the first relevant chart, and debating its purpose, benefits, and disadvantages. Although "stimulus test," shortened to "stim test," is the most prevalent term, the same kind of peak of tension test has been called a "card test" or "card control test," an "acquaintance test," an "introductory test," and simply a "numbers test." Also debated is whether the examiner should be blind to the number chosen, or the examiner should know the number chosen.

Here, then, is some of the literature on stimulation tests:

Abrams, Stanley (1978). The utilization and effectiveness of the stimulation test. *Polygraph*, 7(3), 178-181.

> The author was a polygraph examiner and clinical psychologist. He described the psychological purpose, the inconsistent research findings, and his presentation and use of the test. He used an open numbers test after the first relevant chart.

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[1] Inbau, Fred E. *Lie Detection and Criminal Interrogation.* Baltimore: Williams and Wilkins, 1942. Second Edition, 1948. Third Edition, with John E. Reid as co-author, 1953.

Barland, Gordon H. (1978). A fail-proof blind numbers test. *Polygraph*, 7(3), 203-208.

The author was a polygraph examiner and research psychologist. He described a blind numbers test, its presentation, handling misses and some observations on countermeasures. He used the test in criminal and in industrial screening, usually after the first relevant chart.

Barland, Gordon H. (1978). An introduction to the number test. *Polygraph* 7(3), 173-175.

The author was a polygraph examiner and research psychologist. In introducing a special issue of *Polygraph* devoted to stimulus tests, he described the advantages, disadvantages, and when to use the test.

Barland, Gordon H. (1984). *Research in electrodermal feedback with stimulus tests.* Final Report, Contract MDA 904-83-M-1150, Barland & Associates, Salt Lake City.

The author was a polygraph examiner and research psychologist. His research with stimulus tests employed 20 subjects, P.O.T. and G.K.T. formats, tests with and without audio biofeedback. Accuracy of the P.O.T. format was 75%, 95% for the G.K.T., chance 20%, and the differences in accuracy were not statistically significant. Two electrodermal channels were used, a.c. (self-centering) and d.c. There was no significant difference in the hit rates between a.c. and d.c. There was no feedback effect.

Barland, Gordon H. & Raskin, David C. (1972). An experimental study of field techniques in 'lie detection.' *Polygraph*, 1(1), 22-26.

The authors were polygraph examiners and research psychologists. In a laboratory study of the accuracy of the Backster Zone Comparison test, employing 72 subjects. There were three treatments of the stimulus test, a card test. One group saw a stim chart correctly identifying which card they picked, one group saw a chart incorrectly identifying which card they picked, and a third group did not received a stim test. The manipulation failed to produce an effect on the accuracy.

Bowling, Mellberth (1978). Comparative analysis of responses in unknown and known solution stimulation testes. *Polygraph*, 7(4), 263-265.

The author was a military examiner. He was interested in knowing which component examiners found most useful in a stim test, and how they analyzed the charts. Results disclosed the electrodermal was by far the most useful, then pneumo, and cardio least useful. In a majority of cases examiners used a combination of preceding criteria, relief patterns, and specific responses.

Bradley, M.T. & Janisse, M.P. (1981). Accuracy demonstrations, threat, and the detection of deception, cardiovascular, electrodermal, and pupillary measures. *Psychophysiology*, 18(3), 307-315. Reprinted in *Polygraph*, 10(2), 77-91.

The authors were research psychologists in a Canadian university. In a laboratory mock crime experiment with 192 subjects, stimulus tests and other factors were manipulated to study the effect. Prior to a Backster Zone Comparison test examinees received three trials of a card stimulus test in one of four conditions. One group were told they were detected on none of the trials, one group on one trial, one group on two trials, and one group on all three trials. There was an effect in the electrodermal recordings in that the more effective they believed the test to be, the more innocent subjects scored as innocent and the more guilty subjects scored as guilty.

Canadian Police College (1985). *Polygraph Examiner Student Manual.*

Describes the format and use of a demonstration test employing cards with numbers, apparently before the first relevant chart.

Decker, Ronald E. (1978). The Army stimulation test -- A control procedure. *Polygraph*, 7(3), 176-177.

The author was then Director of the Army Polygraph Course at Fort McClellan, Alabama. He describes the known solution stimulation test, using numbers, taught at the course. The stimulation test is administered after the first relevant chart unless the examinee declares he does not believe in the polygraph test.

Elaad, Eitan & Kleiner, Murray (1986). The stimulation test in field examinations: A case study. *Journal of Police Science and Administration*, 14(4), 328-333.

The authors were researchers with polygraph experience. From 232 control question tests, all non-deceptive, all confirmed, and all relating to the same case of arson, the authors selected at random 50 sets of charts in which a stim test was given after the first relevant chart, and fifty sets in which the stim test was omitted. There was no significant interaction effect on the detection rates between those tests that had a stimulation test and those that did not. By channel, there were no statistically significant differences, but those tests following the stimulation tests had a slight increase in scores for respirations, and somewhat lower electrodermal scores.

Fingerhut, Keith R. (1978). Use of the stimulation test in pre-employment testing. *Polygraph*, 7(3), 185-187.

The author was an examiner in private practice. He describes a blind stimulus card test given before the first relevant chart, and lists the advantages of a pre-employment stim test.

Golden, Richard I. & Hunter, Fred L. (1970, Nov-Dec). The measurement of upper and lower respiration in lie detection. *American Polygraph Association Newsletter*, 4(6), 16-19.

The authors were polygraph examiners in private practice conducting research on the relative effectiveness of upper and lower respiratory recordings. In one of two procedures they analyzed the results of 50 known solution stim tests from real cases. Of 32 stim tests that showed deception to the key item in respiration (64%), 26 (81%) appeared in both channels, 6 (19%) only in the upper, and none only in the lower.

Gustafson, Lawrence A. & Orne, Martin T. (1964). Effects of perceived role and role success on the detection of deception. *Journal of Applied Psychology*, 49(6), 412-417.

The experimenters were experimental psychophysiologists. 72 examinees were divided into four groups in which two stimulation type numbers tests were given. The primary dependent variable was detectability in the second stim test. Half of one group was told after the first they had drawn a blank card, which they had not, and half were told the number on the card they chose. Half of each of those groups were motivated to deceive, and half motivated to be detected. Those motivated to be detected and were told they deceived the examiner in the first test, became relatively easy to detect on the second test. Similarly, those motivated to deceive and were told they were detected in the first test, became easy to detect in the second test. The opposite was true of the other two groups.

Harrelson, Leonard (1964). *The Keeler Technique*. Chicago: Keeler Polygraph Institute.

The author was a practicing examiner, owner and director of the Keeler Polygraph Institute. He described his Peak of Tension type B as a format that may be used to convince the subject of the accuracy of the polygraph technique. He also mentioned other uses for the searching POT. His selection of type B rather than POT type A suggests that the examiner would be blind to the number or item chosen by the examinee.

Hickman, Richard C. (1978). Usefulness and theory of the stimulus test. *Polygraph*, 7(3), 182-184.

The author was then Director of the Los Angeles Institute of Polygraph. Describing an open test with numbers or colors, administered before the first relevant chart, the author gave his reasons for the test, and why it should have been given first.

Horowitz, Steven W., Kircher, John C. & Raskin, David C. (1986). Does stimulation test accuracy predict accuracy of polygraph tests? *Psychophysiology*, 23(4), 23 [abstract].

The authors were psychophysiologists working in a university setting. Dr. Raskin was a practicing examiner. In a laboratory test 100 examinees took stimulation test followed by control question tests. The stim test, was a numbers test with chance detection at 25%. Stimulation test detection was significantly above chance at 51%. When stim tests were correctly analyzed, 81% of the following CQT tests were also correctly analyzed. When stim tests were incorrectly analyzed, the following CQT tests were correctly analyzed at 80%. The difference is not significant.

Inbau, Fred E. (1948). *Lie detection and criminal interrogation.* Baltimore: Williams and Wilkins. Second edition, 1948. Third edition, with John E. Reid as co-author, 1953.

The authors were examiners in the Chicago Crime Laboratory. The books describes the administration of the card control test, and in the Third edition the test is administered after the first relevant chart.

Kirby, Steven L. (1981). The comparison of two stimulation tests and their effect on the polygraph technique. *Polygraph,* 10(2), 63-76.

The author was an examiner in private practice. From his file he drew 40 sets of confirmed specific issue Reid control question tests, half deceptive and half truthful. Half of each of those groups were given an open card stimulus test in which the examinee knew the examiner knew the card he drew, and half of each group was given a test in which the examinee did not know that the examiner knew which card he drew. Ten experienced examiners analyzed the charts. The two stim test types did not produce a significant difference in responsiveness. Deceptive examinees distorted the known card test more than the unknown test. Distortions did not differ for truthful examinees. There was no significant effect of a stim test type on accuracy and inconclusive rates in the blind analyses.

Law, Joseph C., Jr. (1977). Report on a new stimulation test. *Polygraph,* 6(2), 132-148.

The author was an examiner in private practice. Appended to a standard stim test of numbers, the examiner asked, "During this polygraph sensitivity test did you lie to me about the number you really circled?" As previously instructed the examinee answered "no." Based on 35 of these tests conducted after the first relevant chart in specific issue tests, the author analyzed the effectiveness of the added question and effectiveness of each channel in detection. Data is included on the results of two other examiners reading these stim charts blind. There are tables and chart samples.

Lee, Clarence D. (1943). *Instructional manual for the Berkeley Psychograph.* Sacramento: Lee & Sons. Text reprinted with photographs added as Lee, Clarence D. *The Instrumental Detection of Deception -- The Lie Test.* Springfield, IL: Charles C thomas, 1953.

The author was a polygraph examiner, first with the Berkeley Police Department, later as a consultant. He describes a card test devised by Leonarde Keeler. The examiner is blind to the card chosen. In conducting the test the examiner shows each card to the subject when asking about it. Lee describes variations where nothing is said, the cards simply shown one at a time. He also notes the value of varying the sequence.

Lieblich, Israel, Kegelmass, Sol & Ben-Shakhar, Gershon (1970). Efficiency of GSR detection of information as a function of stimulus set size. *Psychophysiology*, 6(5), 601-608.

The authors were researchers at a university in Israel. The issue was what is the effect of varying the number of cards with numbers in a stim type test. They found with two cards, chance 50%, detection was 70%; with four cards, chance 25%, detection was 61%; and with eight cards, chance 12.5%, detection was 52%. The decrease in accuracy with the increase in numbers was not statistically significant.

Lovvorn, Donald J. (1978). A modified controlled stimulation test technique. *Polygraph*, 7(3), 188-193.

The author was a regional polygraph examiner for the Texas Department of Public Safety. He describes in detail his procedure for a blind numbers stim chart, administered after the first relevant chart.

Matzke, Norman A. (1972). Sensitivity level test *vs.* card test. *Polygraph*, 1(4), 238-240.

The author was a police polygraph examiner who urged examiners to avoid the use of cards in a stimulus test because they suggested trickery. He then described a blind numbers test, called a sensitivity level test. It is given after the first relevant chart.

Ohnishi, Kazuo, Matsuno, Katsunori, Arasuna, Masana & Suzuki, Akihiro (1976). The objective analysis of physiological indices in the field of detection of deception. *Reports of the National Institute of Police Science*, 29(3), 181-188.

The authors were examiners at the National Institute of Police Science in Tokyo. Blind to the key number used in 50 stim tests conducted with criminal cases in Osaka, analysis was conducted with various rank scores. Chance was 17% with six numbers. Rank scoring breathing suppression detection was 46%, electrodermal was 72%, and the two combined was 92%.

Reid, John E. & Inbau, Fred E. (1966). *Truth and deception: The polygraph ("lie detector") technique*. Baltimore: Williams & Wilkins. Second edition, revised, 1977.

Mr. Reid was in private practice and Mr. Inbau a professor of law at Northwestern University. Previously, they served together as examiners at the Chicago Crime Laboratory. They described a card test administered directly after the first relevant chart.

Richardson, Drew C., Carlton, Barbara L. & Dutton, Donnie W. (1990). Blind analysis of skin conductance response recordings from a numbers test. *Polygraph*, 1991), 9-20.

The authors were researchers at the DoD Polygraph Institute and Mr. Dutton was also an examiner. 70 soldiers were given three numbers tests, one forward, one reversed, and one with numbers in random order. The conductance records were analyzed by 11 persons, four naive, seven experienced examiners. Chance was 17%, detection was 79%. There was no statistically significant difference between naive and experienced reviewers in their accuracy. Forward and reverse charts were alike in detection, but higher, 87%, for random order.

Scarce, Kenneth W. (1978). The true blue control test. *Polygraph*, 7(3), 194-198.

The examiner was in private practice. His test combines colors and numbers and serves to point out that a half truth will be detected as a lie. The author gives reasons for stim tests, and the true blue test in particular. He gives the test before the first relevant chart.

Senese, Louis (1976). Accuracy of the polygraph test technique with and without card test stimulation. *Journal of Police Science and Administration*, 4(3), 274-276.

The author was a staff examiner at John E. Reid & Associates. Using 30 sets of confirmed charts from the files he had 7 staff examiners make decisions from only the first chart of each chart, and a month later make a decision from the second relevant chart, after the Reid stimulus chart. Excluding inconclusives, analyses of first charts were correct at 80%, and second charts at 89%. The author assumes the difference is caused by the stimulus chart effect, and not the serial position.

Weir, Raymond Jr., Jr. (1978). Stimulation procedures: A conservative view. *Polygraph*, 7(3), 209-214.

The author was chief of a major federal polygraph program. He gives a number of cogent reasons for not using stimulus tests.

Widup, Richard & Barland, Gordon H. (1996). The numbers test: The effect of the location of the numbers test in examinee decision rates in criminal psychophysiological detection of deception. *Polygraph*, 225(4), 256-265.

Mr. Widup was chief of quality control for a major government polygraph program and Dr. Barland was a researcher at the DoD Polygraph Institute. The United States Army Criminal Investigation Command conducted 251 criminal specific examinations with the stim test after the first relevant chart and 231 examinations in which the stim test was conducted before the first relevant chart. The location of the numbers test had no effect on the inconclusive rate or the number of deception indicated and no deception indicated decisions.

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