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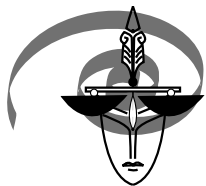
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## Confirmed Mental Countermeasure Case in Costa Rica

There are mixed opinions in our profession about whether papers concerning deliberate distortions and countermeasures should be published. Whether they better educate those wishing to employ them, or help educate the seekers of truth. This paper is written of a confirmed examination where countermeasures were employed to assist the latter.

The use of physical countermeasures to defeat psychophysiological veracity (PV) examinations using the polygraph has been well promoted in various anti-polygraph literature and in some rare cases its use has been confirmed by the guilty examinee. Indeed, in one particular case (Matte 1991) an examinee was administered the Quadri-Track Zone Comparison Technique for a defense attorney which revealed a deceptive score of minus -22. During the posttest interview, the examinee confessed to his crime and produced a tack from the insole of his right boot, explaining that he had read a booklet with instructions on defeating the PV examination by primarily controlling his breathing and placing a tack in his shoe to cause pain on all of the test questions except the

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relevant questions. A previous PV examination by the police had produced inconclusive findings resulting from his use of those physical countermeasures. The failure of those physical countermeasures in the above defense attorney case was due to the fact that the Quadri-Track ZCT employs the Matte “Dual-Equal Strong Reaction” Rule which dictates that when the red (relevant) and green (control) zones being inter-compared both contain timely, specific and significant reactions of maximum and equal strength, a minus one (-1) score is assigned to that Spot (Matte 1996: 406). The scores from this Rule are augmented by the minus scores acquired by the Inside Track’s Hope of Error question. However, the introduction of sophisticated motion sensors by manufacturers of computerized polygraph instruments<sup>1</sup> caused anti-polygraph entities to re-evaluate their countermeasure methods with instructions in the use of mental countermeasures which are immune to discovery by motion sensors. Needless to say, confirmation in the use of mental countermeasures by a guilty examinee is rare, and when it does occur, it is imperative that the method(s) used are reported to the polygraph community.

During December 2009 this author and his staff had to conduct a series of over 40 PV examinations in a company which had approximately 500 employees. The examinees were all college graduates and fluent in English. They were chosen by the management of the company based on their access and/or possible involvement in the matter under investigation. The tests were multi faceted Integrated Zone Comparison tests (IZCT) (Gordon et al. 2000).

The relevant questions were:

1. Did you XXXXXXXXXXXX?
2. Did you participate in any away in XXXXXXXXXXXX?
3. Do you hide the identity of anyone who was involved in XXXXXXXXXXXX?<sup>2</sup>

All tests were conducted using the IZCT with the 3-position scale and horizontal scoring system verified with the ASIT (Academy for Scientific Investigative Training) algorithm for chart interpretation (Gordon 2005). The ASIT was the tool which was used to determine the final score of the horizontal scoring. One of the examinees tested showed no signs of deception either during the pretest interview or the collection of his physiological data. His poly-

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<sup>1</sup> Motion sensors were available in analog polygraph instruments which required the sacrifice of one of its channels , hence few analog instruments contained motion sensors except those with five channels. However the arrival of computerized polygraph systems permitted the use of motion sensors without sacrificing any of the four minimum channels needed to record the required data.

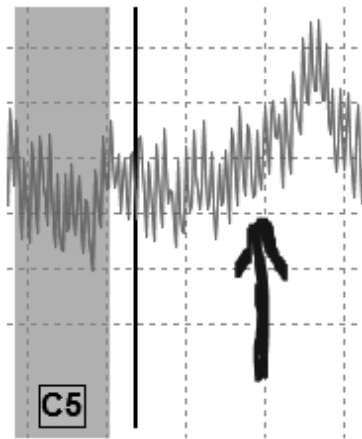
<sup>2</sup> Some of the examinees had different levels of suspicion. For various reasons, one of the examinees pointed at the person who was subsequently found the guilty.

graph charts appeared NDI (No Deception Indicated); (three-position scale evaluation – R6= +3 R9=+6 R12=+5. ASIT score R6= +8.75 R9= + 14.75 R12= + 11.5); (PolyScore version 6.3 declared: “No Deception Indicated” (the possibility of deception = R6 0.00, R9 0.01, R12 0.00(Objective Scoring System – Version 3 determined – No Significant Reactions).

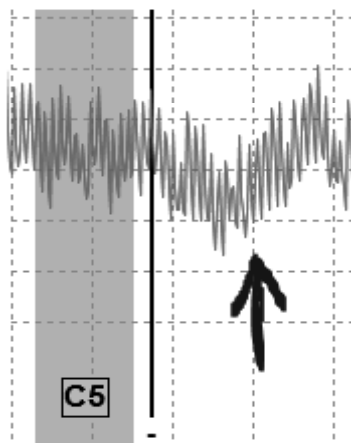
In spite of these scores, there were several points that raised suspicion that the examinee was employing countermeasures in an attempt to manipulate the outcome of the examination:

1. The reaction in the cardio component in comparison question C5 was too late.

a. First Chart: 7.7 seconds

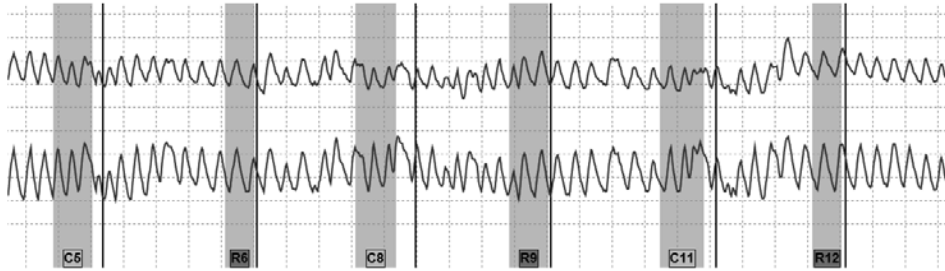


b. Second Chart 6.3 seconds

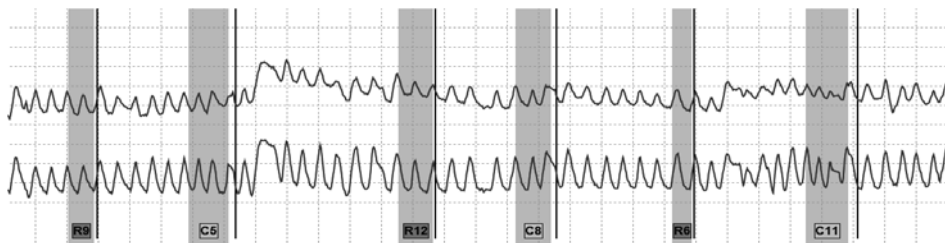


2. There were very unusual and relatively strong reactions observed in the pneumo component to the comparison questions in the first and third charts.

a. First Chart:

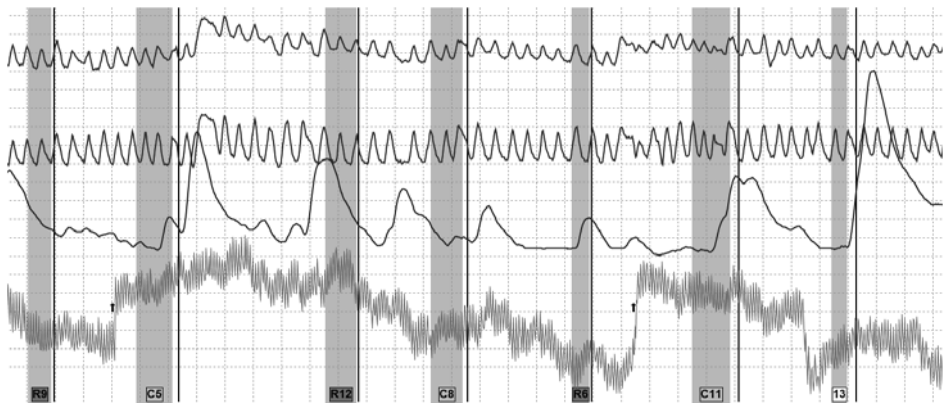


b. Third chart:



The reaction again starts too late compared to the critical zone.

a. Countermeasure Question #13 in Chart 3 of the IZCT:





In two of the charts, the IZCT Countermeasure (CM) question had a significant reaction. The strongest one was in the third chart (see question 13).

The combination of all these factors caused this author to stop the test and render a *No Opinion* test result.

#### Admission and Confirmation:

The examinee was brought to a second interview and was explained that some reactions existed which caused a noise in the test. He was asked to explain those reactions and the method he used to produce them. After a short hesitation, the examinee asked how this author had managed to detect his use of countermeasures, inasmuch as he had been promised that the things he had been taught to defeat the PV examination were perfect and could not be detected. This author's reply was that his vast experience in interpreting polygraph charts far outweighed the value and effectiveness of his countermeasures.

The examinee admitted that he contacted a friend and explained that he is about to take a polygraph test and needed to pass it. The next day his friend called him back and told him that there are three types of questions:

- Questions related to the case
- Neutral questions which the answer is known to him and to the examinee
- A third type known as a control question which usually has an exclusion which will start with the any of the words (between, before, beside, until). With these questions he must tell himself (I am innocent repeating it 3 times) and in the third chart he has to try and inhale and exhale less (4 times).

He said that he was very focused in trying to find these questions (exclusive comparison question used only in C5).

In addition to the above declarations in the use of mental countermeasures, the examinee confessed to the crime which generated the PV examination.

## Discussion

In the many years that this author has been teaching, conducting PV examinations and performing quality control reviews, I have found 4 or 5 test which

I suspected of countermeasures (non in Costa Rica). This is the first time I received a confession regarding the use of countermeasures.

On the 14<sup>th</sup> of January 2009, this author and his staff saw an advertisement in one of the newspapers from someone naming himself, the “center for training to pass the polygraph”.



We called the center which provides two cellular numbers. Maybe the level of the questions made them suspicious of us and they never returned the call as they promised.

It should be noted that If this author had used the conventional vertical scoring system and Matte’s “Dual-Equal Strong Reaction” Rule, it would had resulted in a minus (–1) score at relevant question R6 which would have resulted in an Inconclusive finding.

## Acknowledgment

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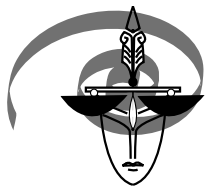
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## Running Head: Understanding False Confessions

### Introduction

The development of DNA testing has, for the first time in the history of criminal justice, made it possible to demonstrate with almost certainty that a convicted individual did not commit a crime.<sup>1</sup> Since its inception in 1992, The Innocence Project has identified more than 250 cases wherein DNA testing revealed that the convicted suspect was factually innocent ([www.innocence-project.org](http://www.innocence-project.org)). False confessions are identified as a factor in about 25% of these cases.<sup>2</sup> Wrongful convictions are of concern to all members of the criminal

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<sup>1</sup> The fundamentals of the DNA testing process suggest that there is no possibility that a person who does not match the DNA sample was a contributor. We have chosen to use the term almost certain here to reflect the possibility for human error in the DNA testing and interpretation process.

<sup>2</sup> It should be noted that The Innocence Project's definition of false confessions is very broad and includes incriminatory statements other than "I did it" as confessions. The prevalence of

justice system not only because a wrongful conviction results in the imprisonment of an innocent person, but also because it allows the true offender to remain at large and commit more crimes.

This paper will review what research has discovered about the phenomenon of false confessions. This will be accomplished by answering a series of questions about false confessions using the established research. These are: how often do false confessions happen; what are the types of false confessions; what are the risk factors; and how can false confessions be identified?

### How Often Do False Confessions Occur?

Determining how often false confessions occur is extremely difficult and researchers have used a variety of methods to arrive at estimates. Some researchers have explored the rate of false confessions by examining wrongful convictions that were produced, at least in part, by confessions. By using estimates of interrogations, arrests, convictions, and error rates; researchers have suggested that wrongful convictions, resulting from false confessions, range from a low of 10 (.001% of all convictions) to a high of 840 (.04% of all convictions) per year in the United States (Cassell 1998; Huff, Rattner, & Sagarin 1986). One of the limitations of this type of methodology is that both the number of interrogations carried out each year and the number of wrongful convictions are unknown. These issues force researchers to estimate these values and the estimates that they choose may consequently be incorrect.

Another methodology for attempting to determine the frequency of false confessions that result from police interrogations is to select a random sample of cases and then look for false confessions in the sample. Cassell (1998) examined the sample of 173 cases from a prosecutor's office and did not find evidence of any false confessions. Similarly, Leo (a critic who suggests that modern interrogation methods are likely to produce false confessions) did not report any false confessions in his 1996 study of 182 police interrogations. While the purpose of his study was not to look for false confessions, one would assume that he would mention false confessions if he had observed them. Of course, as suggested by the low frequency estimates in the paragraph above, an extremely large sample would be needed to detect any false confessions.

Yet another way to estimate the frequency of false confessions is to survey convicts and ask if they have ever given a false confession to the police. Gud-

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false confessions appears to be about 10% when only direct admissions of guilt are included (see Blair 2005).

jonsson and Sigurdsson (1994) and Sigurdsson and Gudjonsson (1996) surveyed Icelandic prisoners. The researchers asked if the prisoners gave a false confession to the crime for which they were currently in prison and if they had ever given a false confession to the police for any crime. Based on the results of these surveys, Gudjonsson (2003) concluded that the false confession rate in Iceland was below 1%.

Although the frequency of false confessions is difficult to determine, the above mentioned studies, using a variety of methodologies, suggest that false confessions are relatively rare events. However, given the large number of interrogations that are conducted throughout the world in any given year, we would expect to see thousands of false confessions every year even with a low base rate of occurrence. We turn now to the types of false confessions.

## What are the types of False Confessions?

Research has suggested that interrogations can produce two types of false confessions: (1) internalized false confessions and (2) compliant false confessions (Gudjonsson 2003; Leo 2001). The distinguishing factor between these is whether the false confessor actually believes that he has committed the act to which he has confessed.

### Internalized False Confessions

When the false confessor believes that he has actually committed an act in which he had no involvement, the confession is commonly referred to as being internalized (Gudjonsson 2003; Ofshe & Leo 1997b; Kassin & Wrightsman 1985). An internalized false confession is generally assumed to follow a three-step process. First, the interrogator attacks the suspect's confidence in his or her memory. Next, the interrogator suggests that the suspect committed the crime but does not remember committing the crime due to some form of amnesia or blackout. Finally, after the suspect accepts that he or she must have committed the crime, the interrogator and suspect work together to produce a detailed confession (Gudjonsson 2003; Leo 2001).

Research has proposed that memory distrust syndrome (MDS), which occurs when individuals mistrust their memories, as a cause of internalized false confessions. Gudjonsson has conducted extensive research into this type of false confession and has found some evidence to suggest that children, individuals

with low IQs and drug addicts may be particularly vulnerable to this type of false confession (see Gudjonsson 2003 for a thorough review of internalized false confession research).

## Compliant False Confessions

False confessions that occur when the individual does not believe that he committed the act are commonly referred to as compliant false confessions (Gudjonsson 2003; Inbau et al. 2001; Ofshe & Leo 1997a; Kassin & Wrightsman 1985). This type of confession is suggested to occur when a subject seeks some form of benefit from confessing, the avoidance of negative consequences from not confessing, or both (Gudjonsson 2003; Inbau et al. 2001; Leo 2001; Kassin & Wrightsman 1985).

A two-step process has been proposed for this type of false confession (Leo 2001; Ofshe & Leo 1997b). Initially, the interrogator convinces the suspect that his situation is hopeless in order to convince him that negative consequences are unavoidable. This is accomplished through repeated accusations of guilt, the presentation of real or fictitious evidence and blocked attempts to deny guilt. Once a suspect is convinced that the situation is hopeless, the interrogator presents the subject with inducements to confess. These inducements are designed to convince the suspect that benefits of confessing outweigh the costs of a continuing claim of innocence (Leo 2001). Inducements include statements like the victim deserved it or people will think better of you if you tell the truth.

## What are the Risk Factors?

Kassin, Drizin, Grisso, Gudjonsson, Leo and Redlich (2009), in a white paper for the American Psychology and Law Society, propose that there are two categories of risk factors; situational and dispositional. Situational risk factors include various aspects of the environment of the interrogation (i.e., length and interrogation methods). Dispositional risk factors refer to traits a particular suspect may have that may make him/her more vulnerable to make a false confession. There is general agreement about the dispositional factors. The situational factors tend to be more controversial. We discuss both sets of factors below.



## Situational Risk Factors False Evidence Ploys

A false evidence ploy suggests to the suspect that the police have evidence of the suspect's guilt, which does not actually exist. False evidence ploys have been identified in several false confession cases. Experimental research on the effect of this type of ploy has been inconsistent. Two studies have explored the impact of false evidence on confessions when the suspect was not certain that they had committed a crime (Redlich & Goodman 2003; Kassin & Kiechel 1996). Both studies involved a subject typing on a keyboard after instructing them not to press a certain key, as this would cause the computer to crash. After a period of time, the computer automatically crashed and the researcher accused the suspect of pressing the prohibited key. With half of the subjects in Kassin & Kiechel's (1996) study, a confederate claimed to have seen the participant pressing the prohibited key. This false evidence procedure produced significantly more false confessions than when no false evidence was introduced. Participants given the false evidence were also more likely to internalize their involvement in pressing the prohibited key. That is they were more likely to think that they had actually pressed the prohibited key when they had not. In the Redlich & Goodman (2003) study, the experimenter presented half of the subjects with a computer printout that showed that the participant had pressed the prohibited key in the false evidence conditions. This study did not find that false evidence had a significant impact on either false confession or internalization.

To examine the impact of false evidence when participants were certain that they did not commit the prohibited act, Blair (2007) conducted a study in which the participants were told not to simultaneously press the control, alt, and delete keys while conducting a mouse driven task as this would cause the computer to crash. The participants, thus, could be certain that they did not perform the prohibited act. The computer crashed automatically after a set period of time. Participants in the false evidence condition were told that a server, which tracked the computer on which the participant was working, indicated that the participant simultaneously pressed the control, alt, and delete keys. The false evidence in this study did not impact the false confession rate.

Nash and Wade (2009) the subjects were asked to participate in computerized gambling tasks using a fake bank and money. Similar to the studies above, the subjects were accused of cheating. Instead of using a print out from the computer or testimony from a confederate, fake videos were used as evidence

against the subjects. After finishing the gambling tasks, respondents were brought back and accused of taking money from the fake bank when they did not. All of them were asked to sign a confession statement. Some respondents were *told* that there was a video of the subject stealing from the fake bank; the others were *shown* a forged which implicated them in stealing money. Respondents who were told there was a video implicating them were more likely to comply with the accusation on the second request in comparison to individuals who were shown the fake video. Subjects that *saw* the video of him/herself cheating were more likely to sign a confession on the first request (93%) and were more likely to partially or fully internalize the confession (86%) compared to subjects who were merely told there was video that implicated them (60%). The results suggest that individuals are more likely to falsely confess to a crime when there is digital evidence of the subject cheating. Taken together, these studies do not consistently support the belief that false evidence causes false confessions.

## Minimization

Interrogators use a variety of statements in their attempts to get suspects to confess. These statements are called inducements when they seek to change the suspect's perceptions of the costs and benefits of a confession. Inducements generally fall into two categories referred to as 'hard sell' and 'soft sell' techniques (Kassin & McNall 1991). The 'hard sell' technique, or maximization, involves tactics such as exaggerating the seriousness of the offense and suggesting that others will think poorly of the subject if he does not confess. 'Soft sell' techniques, or minimizations, seek to minimize the subject's perceptions of the negative consequences of confessing. Offering face-saving excuses, blaming the victim or citing extenuating circumstances are all examples of minimizations.

Critics claim that minimizations and maximizations communicate promises of leniency and threats of punishment that are similar to explicit threats of punishment and promises of leniency through a process called pragmatic implication. Explicit threats and promises are not permitted under the law in many countries because they are believed to increase the likelihood of a false confession occurring. The use of inducements is, therefore, believed to increase the likelihood that false confessions would occur because they are believed to operate in a way that is similar to explicit threats and promises.

One study provides limited support for the view that minimization or maximization techniques may alter perceptions of punishment (Kassin & McNall

1991). In this study participants read transcripts of interrogations that contained various interrogation tactics and then indicated the amount of punishment that they felt the suspect in the transcript should receive. The results found that minimizations or maximizations altered the amount of punishment participants recommended in some, but not all, of the conditions.

Russano, Meissner, Narchet & Kassin (2005) examined the impact of minimization and offering a deal on false confessions. Each participant was matched with a confederate to answer questions. Some questions were classified as “team questions” where both the respondent and the confederate were to participate in answering the question; others were to be answered by the participant on their own. At some point during the session, the administrator left the room. When the administrator left the room, the confederate asked for help on one of the individual questions. Some respondents helped the confederate on this question and thus cheated while others did not. Both innocent and guilty subjects were interrogated and accused of cheating during the process.

Minimization methods and offering an explicit deal increased the number of confessions given by both innocent and guilty subjects. The use of minimization and offering a deal increased the rate of true confessions to 81% and 72% respectively, from the original 46% (without any interrogation tactic). The use of minimization and offering a deal to respondents increased the false confession rate to 18% and 14%. The original rate of false confessions, barring minimization and offering a deal was 6%. However, when both methods were collectively used, the rate of false confessions rose to 43% (Russano et al. 2005).

All of the studies that have been used to support the beliefs that false evidence and minimizations produce false confessions have been laboratory based. As a result, the studies lack many of the factors that are present during actual interrogations (Russano et al. 2005). How these studies relate to actual interrogations is consequently unclear. Small changes in the designs of these studies have also produced drastically different results suggesting that the underlying mechanisms are unstable.

## Dispositional Risk Factors

Immaturity is a determining factor which negatively influences juveniles during interrogations. Children are more suggestible to suggestion than adults, have a strong trust of people in authority, tend to act on emotions, and are less likely to understand consequences of confessing to a crime they may or may not have committed (Drizin & Leo 2004; Gudjonsson 2003; Dunn 1995; Ceci 1994; Sigurdsson & Gudjonsson 1994; Ceci & Bruck 1993; Ofshe 1989;

Grisso 1981; Loftus 1979). Both academics and practitioners believe that children and the mentally handicapped are at risk for giving false confessions. It appears that juveniles and the mentally handicapped are simply not as able to resist interrogation pressure as normal adults.

Gudjonsson, Sigurdsson, Asegeirsdottir & Sigfusdottir, (2007) examined background factors of 1,896 Iceland students. Their ages ranged from 15–24. One hundred and thirty-eight members of the sample claimed to have falsely confessed. Of those respondents who claimed they had falsely confessed to a crime; bullying at school, LSD use, substance misuse treatment, experienced violence in the street or at home, death of a parent or sibling, being expelled from school, and negative school performance were more common compared to individuals who claimed they did not falsely confess.

## Identifying False Confessions

While the situational and dispositional factors mentioned above may increase the likelihood of a false confession occurring, the majority of confessions with one or more of these risk factors will still be true. Additionally, false confessions can also occur when none of the risk factors discussed above are present. It is, therefore, useful to treat every confession as if it could be false and test it for reliability.

Leo (2008) suggests that three factors should be weighed in establishing the reliability of a confession. These are: (1) the confession is consistent with facts known to the public, (2) the confession is consistent with the facts *not* known to the public but known to the police and (3) the confession includes information that led the investigators to new evidence.

At its most basic level, the confession should be consistent with facts known to the public. This type of consistency, however, does not mean that the confession is true, as the false confessor may have heard this information and integrated it into his or her statement.

Information that is consistent with facts not known to the public but known to the police is suggestive of a true confession. Care must be taken, however, to ensure that the information was not accidentally leaked during the interrogation before the confession is considered true. We, also, suggest that information that will be withheld from the public be clearly indicated in the case file. This will help prevent accidental disclosure.

Finally, a confession that leads the police to new evidence in the case is almost certainly true. That is, if the confessor says that he hid the gun in a particular

location, and the police find the gun in that location, the confession is almost certainly true.

Conducting this type of analysis provides a final check to verify that the confession is consistent with the facts of the case. From a logical standpoint, if the confession is not, it cannot be true. Corroboration of the confession with known facts should be a regular part of any investigation. In order to be certain that the corroborative information was not accidentally leaked during interrogation, electronic recording of an interrogation is necessary.

### Videotaping Interrogations

Various research has supported the idea of mandated electronic recording of the entire interrogation and has provided reasons why mandating such practices would be beneficial. According to Drizin and Reich (2004), electronic recording of an interrogation allows individuals to make an accurate examination of the confession, prevents coercive interrogation tactics and could improve the relationship between the police and that public. The use of videotape also allows for an examination of what objectively happened during the interrogation rather than relying on the often faulty and subjective accounts of the participants in the interrogation (Kassin et al. 2009; Drizin & Reich 2004).

Others have suggested that electronic recording of an interrogation will also minimize the need for note-taking and ensure that the confession was given voluntarily (The Justice Project 2008). Providing an objective record of what occurred during the interrogation is critical to testing the reliability of a confession. Without it, there is always a possibility that information known to the police was accidentally leaked to the suspect. The objective record also protects both the suspect from misconduct on the part of the interrogator and the interrogator from claims of misconduct on the part of the suspect (Drizin & Reich 2004). That is the interrogator is less likely to misbehave if he or she knows that the session is being recorded. Essentially, electronic recording of interrogations is deemed to help both the defendants and the officers (The Justice Project 2008; Drizin & Reich 2004; Jayne 2003).

A study conducted by the Justice Project (2010) in Texas and Tennessee found multiple reasons why police departments did not record interrogations. The most frequently cited reasons include the cost of recording devices and the suspects' refusal to speak in a recorded interview. Other reasons include the belief that obtaining a confession may be more difficult and that there may be bad reactions to interrogation techniques along with potential equipment malfunctions.

Jayne (2003) conducted a survey of police investigators experience with electronic recording of interviews and interrogations in Alaska and Minnesota in the United States which require recording of interrogations. The results suggested law enforcement agencies' original concern, that obtaining a confession may be more difficult when using recording devices, was not founded. Seventy-eight percent of the participants indicated that electronic recording either did not affect or increased the rate of confessions. Most of the participants also indicated that the recording of interrogations did not give an advantage to the defense and that recording reduced the length of trials.

## Conclusion

False confessions can and do happen. This article provided a brief overview of the typology and causes of false confessions. Research has suggested that confessions should be tested for reliability before they are relied upon as evidence. In order for this to occur, interrogations must be recorded in their entirety. It is our hope that the information presented here will help examiners both avoid false confessions and identify them when they do occur.

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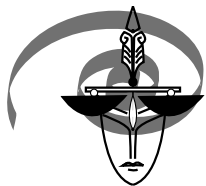
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## Forensic Examination of Memory Traces Part 2

Forensic examination of memory traces requires a change of approach to the polygraphic examination, especially the way in which it is conducted. To rely on a comparison, one may say that the difference between polygraphic examination as so far understood (lie detection, detection of deception, etc.) and forensic examination of memory traces is much like the difference between examination of traces and microtraces (microtraces are particles of matter or features of a physical action connected to an event that are hardly visible or not visible to the naked eye). Much as in the case of microtraces, the ability to disclose and protect memory traces is significant.

The possibility of using memory traces adds to the potential, much as the popularisation of the use of microtraces resulted in a major increase in applying

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forensic material traces in criminal procedures. This also results from the fact that a criminal procedure is based mostly on memory traces. Forensic examination of memory traces allows not only establishment and examination of what actual memory traces are registered in the nervous system of the person testifying or providing explanations. Thanks to the possibility of establishing the time and the circumstances when such traces originated, their susceptibility to destruction is significantly lower compared to microtraces.

The examinee should be allowed to present his or her version of the event. It is impermissible to perform assessments, especially critical ones, in respect to the utterances of the examinee, challenging the examinee's truthfulness, threatening with consequences, etc. One should also aim to clear all the doubts that the examinee may have, as far as this is possible.

Improper instruction, improper treatment of the examinee, showing disregard, conceit, lack of objectivity, and dishonesty in most cases negatively influence the physiological activity of the examinee.

Differences in the emotional state of the examined people and in their manner of reacting to stimuli may result not only from the individual qualities of the examinees but also from their attitude to the examination, resulting from various motivations, and involvement in various social interactions, etc.

Presented below is a numerical evaluation of 113 confirmation tests.

General remarks:

1. 32 people were subjected to this analysis.
2. In the decided majority of cases (29 examinations of the 32 analysed), the examination was conducted using the Reid technique, with control question tests. (In Polish conditions, this is the most precisely recognised and described technique, for which reason verification of the results should not cause problems, also for other experts).
3. In all the cases assessed where control question tests were used, the result was positive for the people examined.
4. In some tests, confirmation examinations, where the examined answered aloud "NO" to all the questions, the test was conducted more than once (altogether 55 tests).
5. In all the examinations, the first test conducted was the one in which the examinee answered aloud "NO" to all the questions.

6. Usually, the second test to be conducted was the SAT (altogether 44 tests). In a few cases, the second test to be conducted was the one where the person examined answered the truth.
7. The third test to be conducted was the confirmation test, where the examinee provided true answers aloud to all the questions – “YES” or “NO” (altogether 14 tests). This version of the test was used only in certain examinations, most frequently, yet not only, when the two earlier procedures did not provide an unambiguous result.
8. All the examinations analysed were conducted by the same expert, with a polygraph machine made by the same producer and of the same type, to reduce to a minimum differences that may result from different ways of conducting examinations and use of different models of polygraphs.
9. A seven-grade scale was used for scoring.
10. Breath 1 denotes thoracic respiration, and breath 2 abdominal respiration.

Results (scores) for individual physiological parameters registered:

1. Tests in which the examined answered aloud “NO” to all the questions.

Score	-3	-2	-1	0	1	2	3	Total
Breath 1	0	0	1	45	9	0	0	55
Breath 2	0	0	1	44	10	0	0	55
GSR	0	0	4	16	17	10	8	55
Cardio	0	2	0	15	15	14	9	55
Total	0	2	6	120	51	24	17	220

Eight results fell in the range from -1 to -3, which accounts for 3.63% of all results.

The result 0 was detected in 120 cases, which accounts for 54.54%.

The result 1 was detected in 51 cases, which accounts for 23.18%.

The result 2 was detected in 24 cases, which accounts for 10.9%.

The result 3 was detected in 17 cases, which accounts for 7.73%.

Only once in all the 55 tests was there a difference in the evaluation of breath response: 0/1.

No differences were found in the manner of reacting between thoracic and abdominal respiration.

In nine cases, the presence of complex responses was detected in cardio.

## 2. Silent Answer Test (SAT)

Score	-3	-2	-1	0	1	2	3	Total
Breath 1	0	0	0	36	6	2	0	44
Breath 2	0	0	0	35	7	2	0	44
GSR	0	0	5	8	13	10	8	44
Cardio	0	1	1	10	16	12	4	44
Total	0	1	6	89	42	26	12	176

Eight results fell in the range from -1 to -3, which accounts for 3.98%. The number of 0 results detected was 89, which accounts for 50.56%. The number of 1 results detected was 42, which accounts for 23.86%. The number of 2 results detected was 26, which accounts for 14.77%. The number of 3 results detected was 12, which accounts for 6.82%. Only once in 44 tests was there a difference in breath response 0/1.

In one case there was a difference in the manner of response. Present in thoracic respiration were sustained suppressed cycles, while ascending suppressed cycles were recorded in abdominal respiration.

In four cases with GSR responses graded as -1, the cardio score was positive and received higher values. In a single case both the GSR and cardio received -1 scores, which did not prevent a positive opinion from being issued for the examinee, due to the results of the remaining tests.

Complex responses in arterial blood pressure were present in two cases.

## 3. Tests in which the examinee answered truthfully aloud "YES" or "NO"

Score	-3	-2	-1	0	1	2	3	Total
Breath 1	0	0	0	12	2	0	0	14
Breath 2	0	0	0	11	3	0	0	14
GSR	0	0	0	1	5	6	2	14
Cardio	0	0	0	5	4	4	1	14
Total	0	0	0	29	14	10	3	56

No results were detected in the range from -1 to -3. The number of 0 results detected was 29, which accounts for 51.78%. The number of 1 results detected was 14, which accounts for 25%.

The number of 2 results detected was 10, which accounts for 17.86%.  
 The number of 3 results detected was 3, which accounts for 5.36%.  
 Out of the 14 tests, there was only one case of 0/1 difference in breath response.  
 Complex response in arterial blood pressure was present in one case.

The total score of individual types of confirmation tests after adding up the scores for individual physiological parameters:

Tests in which the examinees answered aloud "NO" to all the questions

Total score	-3	-2	-1	0	1	2	3	4	5	6	7	8	9	Total
Number of tests	0	2	1	3	11	13	6	10	5	2	2	0	0	55

3 results were detected in the range from -1 to -3, which accounts for 5.45%.  
 The number of 0 results detected was 3, which accounts for 5.45%.  
 Results in the range from 1 to 4 were detected 40 times, which accounts for 72.73%.  
 Results of 5 or more points were detected 9 times, which accounts for 16.36%.

Silent Answer Test (SAT)

Total scores	-3	-2	-1	0	1	2	3	4	5	6	7	8	9	Total
Number of tests	0	1	0	7	4	8	11	6	2	2	1	0	2	44

1 result was detected in the range -1 to -3, which accounts for 2.27%.  
 The number of 0 results detected was 7, which accounts for 15.91%.  
 Results in the range from 1 to 4 were detected 29 times, which accounts for 65.91%.  
 Results of 5 or more points were detected 7 times, which accounts for 15.91%.

Tests in which the examinee answered truthfully aloud “YES” or “NO”.

Total score	-3	-2	-1	0	1	2	3	4	5	6	7	8	9	Total
Number of tests	0	0	0	0	1	6	2	3	1	0	1	0	0	14

No results were found in the range -3 to 0.

Results in the range from 1 to 4 were detected 12 times, which accounts for 85.71%.

Results of 5 or more points were detected 2 times, which accounts for 14.29%.

Types of emotional changes registered in individual tests and parameters:

Breath responses:

Type of test	NO	SAT	Truth
irregular breath	-	-	-
sustained suppressed cycles	4/4	4/3	-
descending suppressed cycles	2/3	0/1	1/1
ascending suppressed cycles	2/2	4/5	1/2
breath blocking	-	-	-
Sigh of relief	-	-	-
Loss of baseline (upward)	-	-	-
Loss of baseline (downward)	-	-	-
change in inhalation/exhalation ratio	-	-	-
increase in breathing rate	-	-	-
decrease in breathing rate	-	-	-
hyperventilation cycles/increasing amplitude	2/2	-	-
suppressed cycles followed by hyperventilation cycles	-	-	-
irregular breath after answer to key question	-	-	-
irregular breath preceding answer to key question	-	-	-
involuntary movement/fidgeting	-	-	-
absolutely irregular breathing	-	-	-

Note: thoracic respiration/abdominal respiration



## Galvanic Skin Response:

Type of test	NO	SAT	Truth
response to all questions with highest response on critical one	26	16	8
single ascent and descent of curve	9	14	1
saddle response (complex response)	-	3	1
long-lasting response	-	-	-
descending curve	-	-	-
response to all questions until and including critical one, followed by lack of responses	5	4	2
lack of response until and exclusive of critical one, followed by reaction to critical and all ensuing questions	-	-	1
increase of response to questions until and including critical one, followed by decrease of responses	-	1	-
increase of curve until and including critical question followed by a long sustained response	-	-	-
other	-	-	-

## Cardio responses:

Type of test	NO	SAT	Truth
increase and drop in blood pressure	11	9	7
increase in blood pressure	6	4	1
drop in blood pressure	<b>19</b>	<b>16</b>	1
increased heart rate	-	-	-
decreased heart rate	-	-	-
increase of heart-rate amplitude	3	1	-
decrease of heart-rate amplitude	5	2	-
change in position of dicrotic notch (upward, downward)	-	-	-
double waves of blood pressure arousal/increase and decrease	1	-	1
triple waves of blood pressure arousal/increase and decrease	-	1	1
fast heartbeat rate maintained throughout test (>100)	-	-	-
unintentional movements/fidgeting	-	-	-
change in systolic blood pressure	-	-	-
change in diastolic blood pressure	-	-	-
increase in blood pressure until and including the critical question, and its subsequent maintenance	4	2	1
increase in blood pressure until and including the critical question, and its subsequent drop	1	2	1
other	-	-	-

We expect that it may be a major surprise for many experts that in the tests marked here as “NO” the fall in arterial blood pressure accounted for 38% of all responses in arterial blood pressure, and the fall of arterial blood pressure accounted in the SAT tests for as many as 43.2% of all responses in arterial blood pressure.

A significant problem in examining memory traces is the high vulnerability to countermeasures (disruption). In most tests, it is possible to find cases of use of countermeasures to the examination on the grounds of visual assessment of the quality of recording of individual registered physiological parameters. There are, however, cases where even an experienced expert may find it difficult to establish the reasons for a non-standard operation of the organism of the examinee, the more so as there may sometimes be no conditions to examine the state of the examinee’s health.

The numerical values for people using countermeasures in the tests with the use of confirmation tests are interesting. The data pertain only to 15 tests, as selected for assessment were only those cases where the examinees proved especially high skills in disturbing the operation of the organisms. We suspect that the manner in which the recordings are disrupted might escape the attention of many an expert.

Results for the individual registered physiological parameters for all types of confirmation tests:

Score	3	2	1	0	-1	- 2	-3	Total
Breath 1	0	0	0	4	8	2	1	15
Breath 2	0	0	0	4	8	2	1	15
GSR	0	0	0	11	2	2	0	15
Cardio	0	0	0	1	4	6	4	15
Total	0	0	0	20	22	12	6	60

General results for all confirmation tests (disrupted) after adding up the scores for individual physiological parameters:

General scores	0	-1	-2	-3	-4	-5	-6	-7	Total
Number of tests	0	0	2	3	2	5	3	0	15

Together with professional experience, we are acquiring an increasing proficiency in recognising the means used to disrupt the examinations. There are, however, cases when we cannot be sure whether (and how) the person examined uses countermeasures to disrupt the operation of his or her organism on purpose.

The generally available literature reveals the following division of countermeasures:

1. Physical:

- physical exhaustion with intense exercise before the examination
- breath control
- muscular motion (fingers, toes, legs, hand)
- controlling arterial blood pressure
- simulation of anxiety, coughing, irregular breath
- straining the muscles (e.g. abdomen, buttocks, thighs)
- self-inflicted pain (drawing pin in the shoe, biting the tongue, toothache, stomach ache, headache, etc.)
- chewing gum.

2. Psychological:

- psychological exhaustion with intensive exercise before the examination: for this reason, it is not advisable to perform the examination immediately after the crime was committed, especially where the act of committing it exhausts the perpetrator psychologically
- lack of sleep
- religious reasons
- moral reasons
- other reasons mentioned before the examination
- complaining about the tight cuff, especially during the initial phase of the examination
- concentration of the focus of attention on other questions contained in the test than the critical questions
- focusing on matters not connected to the examination (prayer, counting (fairly complicated), thinking about matters e.g. connected to sex, thinking about crimes other than the one being investigated, etc.)
- intense staring at a point on the wall
- self-stimulation by stacking up various threats and problems

- attempts at throwing the examiner by challenging his competence, challenging the usefulness and even legality of examination, ambiguous glances, etc., intensive attempts to “stare the examiner out”
  - relaxation
  - self-hypnosis and hypnosis
  - hunger.
3. Chemical:
- consumption of alcohol
  - consumption of drugs
  - consumption of pharmaceuticals
  - smoking a large number of cigarettes.

The technique that we use is highly helpful in these cases.

At the beginning of the examination, in the control questions tests or in the first peak of tension test (when only such tests are used), we place last the question “Are you trying to disrupt this test in any way?” This question naturally requires appropriate discussion while discussing the questions.

In the case of significant emotional changes arising in the examination while answering this question, or should any doubts at all be raised, it is possible to use the peak of tension test, a development of the question above. The test we have produced follows:

1. Neutral question?
2. Neutral question?
3. Are you hiding any health problems?
4. Have you come to the examination feeling sleepy?
5. Have you taken any medications in the last 24 hours?
6. Did you rub anything into your palms before the examination?
7. Have you taken any drugs within the last 24 hours?
8. Have you drunk any alcohol over the last 24 hours?
9. Are you feeling any pain during the examination?
10. Are you looking intently at the wall?
11. Are you straining any muscles?
12. Are you thinking intensively about something other than the questions asked?
13. Did you smoke a cigarette before the examination (did you smoke more cigarettes than you said)?
14. Have you drunk coffee today?

15. Did you arrive at the examination feeling tired?
16. Are you trying to disrupt this examination in a manner different from the ones I listed?

This is not a closed set of questions and can be complemented with any questions that the person conducting the examination may find useful. For example, if we have doubts whether the examinee's manner of breathing is natural, we can add to the test above the question "Are you breathing differently from normally on purpose?"

Similarly, the person conducting the examination may omit certain questions if he is concerned that they concern behaviours that do not occur during the examination. For example, when the GSR recording looks natural, we can omit the question "Did you rub anything into your palms before the examination?", and so forth.

In justified cases, it is possible to develop each of these questions into a more detailed test. If the examinee reacts emotionally to the question about taking medications before the examination, we may aim to define what type of medications were taken, using for example the questions below (this is not a closed set either):

1. Neutral question?
2. Neutral question?
3. Have you taken any stimulants over the last 24 hours?
4. Cough syrup?
5. Nose drops?
6. Narcotic drugs?
7. Tranquillisers?
8. Cardiac medicines?
9. Painkillers?
10. Antibiotics?
11. Have you taken any medications other than the ones I listed over the last 24 hours?

With the suspicion that drugs were taken before the examination, the following set of questions may be used:

1. Neutral question?
2. Neutral question?

3. Have you taken morphine over the last 24 hours?
4. Opium?
5. Marijuana?
6. Cocaine?
7. Amphetamines?
8. LSD?
9. Ecstasy?
10. Heroin?
11. Have you taken any drugs over the last 24 hours other than the ones I listed?

In case of doubt, it is possible to disclose how many times the examinee has taken narcotic drugs in his life or in a specific period of time, when he did so for the last time, etc. (these tests may provide a separate technique of examination towards drug use).

Of course, throughout the examination, we watch carefully the behaviour of the examinee, his appearance, facial expression, gesticulation, way of speaking, look of the eyes and especially of the pupils, and way of breathing. We also pay attention to the person's body odour: sweat, tobacco, alcohol. This, however, is a subject for a separate study.

#### Comments:

1. use of countermeasures in examinations (especially in respiration, and in GSR: escape into thoughts) may result not only from eagerness to hide the knowledge of the main fact, but also of attempts to hide facts of secondary and even tertiary importance.
2. Disruption of tests during the stimulation tests, in isolated cases, may have the same grounds as the ones mentioned above.
3. No attention should be paid to the examinee disrupting the examination by tensing muscles. It is to be tested whether he behaves in a similar manner during the stimulation test and the repeated main test. It is only after a number of attempts that you can focus attention on the examinee's behaviour, remind him he should behave, and repeat the main test again.
4. Some people may on purpose disrupt the examination (stimulate responses) after the asking of control questions, eager to create stronger responses to these questions on purpose. If they do so skilfully, this may escape the attention of an inexperienced expert.
5. Changes of activation within various physiological systems may differ from

another, yet it is hardly probable that a high level of activation within one system is accompanied by a simultaneous state of relaxation in another one.

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# Book reviews





*Jerzy Konieczny*

*Badania poligraficzne. Podręcznik dla zawodowców  
[Polygraph examination. Handbook for professionals],*

Wydawnictwa Akademickie i Profesjonalne,

Warszawa 2009, pp. 221.

The book by Jerzy Konieczny is the first Polish monographic work devoted to polygraph examinations, published in Poland in the last more than 20 years. It is the author's conscious decision not to deal with the history of polygraph examination, its psychophysiological grounds, and the questions of its diagnostic value. Nor does he describe the practice of applying polygraph examination in various countries, nor consider its legal admissibility, both in investigations and in human resources examination (including pre-employment). The author assumes that these questions are either known or indifferent to the reader. A fact emphasised in the book subtitle: *Handbook for professionals*. Thus, it is a book addressed primarily to those who perform polygraph testing. It is for them that the author presents contemporary techniques of performing polygraph examinations. It is worth reminding that the major interest in the subject in Poland in the late 1970s and early 1980s – which brought about numerous experimental works and case studies as well as descriptions of practices and analyses of the results – was followed by a complete stasis. The lack of appropriate empirical studies, the lack of analyses of practices, severing the contacts with the world science resulted in a regression in the level of the tests performed. These performed for investigation purposes in Poland still used the

Reid technique, sometimes modified in absolutely free and non-standardised ways. Moreover, various modifications of the Guilty Knowledge Test (GKT) technique began to be used quite uncritically and without any standardisation, moreover, resorting to the displaying of various objects or photographs during the test to the examinee, frequently without the understanding of the essence of this examination. Moreover, suggestive pre-examination and other interviews were conducted in a manner disrupting the course of the examination that followed.

Jerzy Konieczny's book presents current techniques of polygraph examination that are generally unknown in Poland. It summons up what the pre-examination interview is to be based on and what it is to serve, how to built test questions, what they should serve, and how to arrange the questions into a test. Moreover, the book discusses both the basic examination techniques: detection of deception (both in the relevant-irrelevant Keeler technique, and in the control question technique) and techniques of detecting concealed information (GKT, CIT). It also shows the differences between the techniques and points at the criteria which allow choosing the appropriate one to be used for the examination in specific circumstances.

It is from this book that the Polish reader may learn for the first time about Backster techniques (Backster Zone Comparison Technique) including Federal Zone Comparison Test and Utah Zone Comparison Technique. For the first time in Polish literature, the author presents Counterintelligence Scope Polygraph Test and the test for Espionage and Sabotage. Besides these, he discusses – also for the first time in Polish literature – the Cullen-Bradley Control Questions Test.

The author devotes much attention to the process of diagnosis in polygraphic examinations, discussing the basic methods in this scope (the quality i.e. global, numerical, and computer methods). A question separate from diagnosing is the one concerning providing opinion (on the grounds of the diagnosis), that is writing the opinion for the party commissioning the examination.

The author also considers that technical problems connected to the use of polygraph in criminal cases, in human resources (staff) examinations, and also in examination of sex offenders. These considerations are based both on the latest world literature and on the author's personal experience.

The book ends in a chapter devoted to the problems of quality of examination and methods of testing that quality.

Generally, the book is a true compendium of knowledge for a contemporary polygrapher.

I believe that its readership may and should be far broader. Primarily, all those who commission polygraph testing and want to use their results should become familiar with the book. Moreover, it should be a compulsory reading for all those who want to speak about the legal admissibility of using such examinations and allowing practical conclusions from their results.

It goes without saying that, as the author assumed, the book is a handbook for professionals. Let us add: an extremely valuable one.

It is my reviewer's duty to add that this book has no match in European literature.

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To publication will be accepts unpublished research papers as well as review article, case reports, book reviews and reports connected with polygraph examinations.

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Abrams S. (1973), *Polygraph Validity and Reliability – a Review*, Journal of Forensic Sciences, 18, 4, 313.

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