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The Offender Recognizes the Victim – About the Advantages of Using the Visual Version of Polygraph Test in Serious Criminal Case

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Abstract

The authors of this article consider the advantages of using a visual version of CIT during polygraph examinations. The presentation of the rarely used CIT encourages to discussion about the possibility of implementation such tests in serious criminal cases. Their application takes a form similar to the police lineup. However, the main difference is that the suspect reviews photographs of possible crime victim. In the described case we are dealing with a so-called "reverse police lineup". As the result, the visual CIT proved that the examinee knew the victim of the crime, despite the fact that he had previously denied this. Thanks to the examinee's arousal recorded on the key question, it was also possible to obtain the desired psychological effect in the form of the perpetrator's confession and the indication of other evidence proving his guilt.

Key words: polygraph examination, Concealed Information Tests, police lineup, detective value

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Introduction

Many lawyers and criminal proceedings specialists, in particular, oversimplify the potential applications of polygraph examination results by law enforcement agencies (Herbowski, 2011). After all, not every forensic expertise aims to produce evidence that can be used to establish guilt in legal procedures. Such an approach may be due to the frequent underestimation of the existence of the most difficult phase of criminal proceedings, i.e. *the in rem phase*. In the case of polygraph examination, it is most expedient to conduct it and use its results at the first stage of police investigative work. J. Konieczny shared a similar viewpoint, believing that the polygraph might be an excellent tool for gathering important detective information but far less commonly for evidentiary purposes (Konieczny, 1988).

There are also fewer requirements for polygraph examinations conducted at this stage of the proceedings (Krzyścin, 1996). Their results allow for the immediate exclusion of the examinee from the list of suspects or the confirmation of one's involvement in a crime, therefore their results are largely of investigative use. However, a positive result for the examined person (Deception Indicated), must be verified by other evidence. Even a potential but unlikely error won't have any detrimental procedural repercussions for the person undergoing the examination. Thus, the doubts of criminal proceedings specialists, concerning the methodology of polygraph examination, are taken into account (Jaworski, 2005).

An extremely important benefit in terms of the interest of the criminal proceedings, which polygraph examination can bring in the *in rem phases,* is the confession due to its psychological impact. Confronted with the test results the actual perpetrator can confess to commit the crime and indicate the evidence proving one's guilt.

The use of polygraph examinations offers also possibility to conceal the true sources of police information which can be introduced indirectly into the criminal trial. After all, it might be challenging to keep police informants safe while still using the data they provide in legal procedures (Herbowski, 2018). Therefore, the provided information can be used to create questions in polygraph tests without indicating how the police acquired knowledge of the details of the crime.

We may face such a situation when witnesses due to fear of revenge from the perpetrator or his colleagues, refuse to provide useful information that could contribute to a conviction of a guilty person. In order not to lose this information in a criminal trial, the data can be used in a polygraph examination, for example, to build Con-

cealed Information Tests. It can allow to indicate the perpetrator's knowledge of details related to the scene of the crime (Jaworski, 2000).

Case study

An example of such application of polygraph examinations can be the case that occurred in a major Polish city. Unknown perpetrators beat Paul S., who died three days later in his apartment. He was the perpetrator of many thefts in the past.

In the initial phase of the investigation, the police had a few crime details from a friend of Paul S, who was present at the beating. However, he covered up his failure to remember the circumstances of the incident due to the alcohol consumption together with Paul S that day. He could not even give the exact number of offenders. He remembered the moment when the perpetrators began their conversation with Paul S.

In addition, police obtained important information that three day before Paul S's death, an unknown man asked about him at a local shop in the afternoon. He had been seen occasionally consuming alcohol at a nearby pub and playing soccer every Sunday. Has was identified as Artur G.

During the police interviewing Artur G. denied knowing or having any contact with Paul S. He claimed that had never asked about him at the local shop. He also did not know who might be involved in Paul's beating. Police officers found out that on Sunday, when the fatal beating occurred, Artur G. with his friends was coming back home from a soccer match. Marek Z. was among them. After police checks in police databases, it turned out that six months earlier Marek Z. reported the police the theft committed against him by the victim of the beating, i.e. Paul S. That investigation was discontinued for lack of evidence.

Both Artur G. and Marek Z. insisted that, after they had returning from the game, they were at home when Paul S. was beaten. Their families confirmed their testimonies providing them with an alibi. The police tried to verify this information with checks of their phone logins in base stations. However, this work did not contribute in any way to clarifying the case.

So, it seemed that the case of the fatal beating would never be resolved. The investigators did not have the ability to collect other evidence to confirm the involvement of Artur G. and Mark Z. in this crime. It was due to the fact that the first investi-

gative steps were taken a few days after Paul S.'s death, when his brother discovered victim's body in his home. During the investigation police didn't collect any forensic traces that could be used to identify the perpetrators, as well as security camera footage (CCTV). There were no witnesses to the crime that could identify the perpetrators.

Due to these numerous difficulties, it was decided to run polygraph tests to verify the testimony of the men. Arthur G. agreed to undergo the polygraph test which was conducted one month after Paul S.'s death.

Course of the examination

The polygraph examination, in accordance with the current methodology, consisted of the following phases.

1. Pre-test interview;
2. An acquaintance test with number;
3. Diagnostic tests regarding the beating of the victim.

The circumstances of this crime allowed to use two kind of tests: recognition tests (the Concealed Information Test, the Know Solution Peak of Tension, the Searching Peak of Tension) and deception tests (the Comparison Question Technique). This is an example of a rare situation because the first kind of tests are typically not employed in forensic polygraph examinations. The reason for this situation is that many crime's details are revealed in the media and cannot be used to build recognition tests.

In this examination two recognition tests (CIT and SPOT) were carried out after the acquaintance test. Usually they are used complementary to the CQT and have been widely described in the Polish literature (Jaworski, 1999; Konieczny, 2009; Widacki, 2011; Wójcikiewicz, 2012, etc.). According to the guidelines, they should be presented as the first to avoid possibility of revealing the useful crime details during the presentation of the relevant questions in CQTs. Krapohl et al. (2009) wrote that the CIT can provide additional support for the decision based on the CQT and they can be an effective tool in the interrogation.

The Concealed Information Tests allow to distinguish between those who know the circumstances of a certain crime although they deny it and those who do not have such knowledge. Key question, which is a circumstance of the event (like the

sum of stolen money, a kind of weapon) is presented among the set of unrelated stimuli. A crime detail is the relevant stimuli and the others are its background.

It is assumed that a person who denies involvement in the incident will recognize and respond to the relevant stimuli (CIT-effect) of the CITs. In preparation to conduct examinations polygraph examiners read the case files, analyze crime scene evidences and other crime details to identify items which are the most likely to be remembered and important to the offender. For those who have nothing to do with a case under investigation, all the stimuli presented in the CIT should be equally indifferent (Krapohl et al., 2009). The accuracy of the CIT is at a level of about 82% (Gougler et al., 2011). It belongs to techniques with a well-established theoretical basis according to which a person focuses his/her attention on significant stimulus, but not indifferent (Selle & Ben-Shakhar, 2023). Moreover, studies conducted by klein Selle suggest that two empirically established mechanisms underlie the CIT-effect: orienting and arousal inhibition. These tests show a very high accuracy in indicating non-offenders, but lower accuracy in detecting offenders (Jaworski, 1999).

The CIT was administered in this examination using its visual format. The test stimuli were presented in the form of photographs, including an image of Paul S. before the beating. Thus, the test was similar in form to a police lineup, in which pictures or people are shown to a witness in sequence (Wójcikiewicz, 2009). The main difference in a polygraph examination is that an image of the victim – Paul S. with other photo of unrelated men were shown to the person suspected of this crime. This test therefore resembles a "reverse police lineup" approach.

In pretest phase examinee Artur G. stated that he had never seen the victim and didn't know what he looked like. It was therefore reasonable to assume that if he is innocent, he should not recognize Paul on the photo as well should not respond on the key element in the test.

The CIT consisted of photographs of six men with the key element – the photo of the victim of the beating on the in third position. In order to ensure objectivity, the CIT must be conducted fairly to be valid and admissible in court. This includes loading the test stimuli with the photos of people who look very similar to the victim (similar age, height, carcass, clothing and other characteristics) – accordance with the Polish law regulations for the police lineup of persons (cf. paragraph 5 para. 1 of the Ordinance of the Minister of Justice of June 2, 2003 on the technical conditions for carrying out the police lineup).

Prior to the data collection process all CIT stimuli were reviewed with examinee to verifying that the key element was selected properly. Arthur G. denied recognizing anyone in the photos. The photos were presented sequentially along with the CIT questions: Is Paul S. at the photo no 3? Is Paul A at the photo no 4? etc. Examinee answered "I don't know" to all presented photos of men.

The polygraph literature mentions about the possibility of presenting the victim photos during the CIT to detect memory traces what might help to connect suspects to a certain crime. The practical application of this variant of CIT, meanwhile, hasn't been demonstrated in many forensic cases so far.

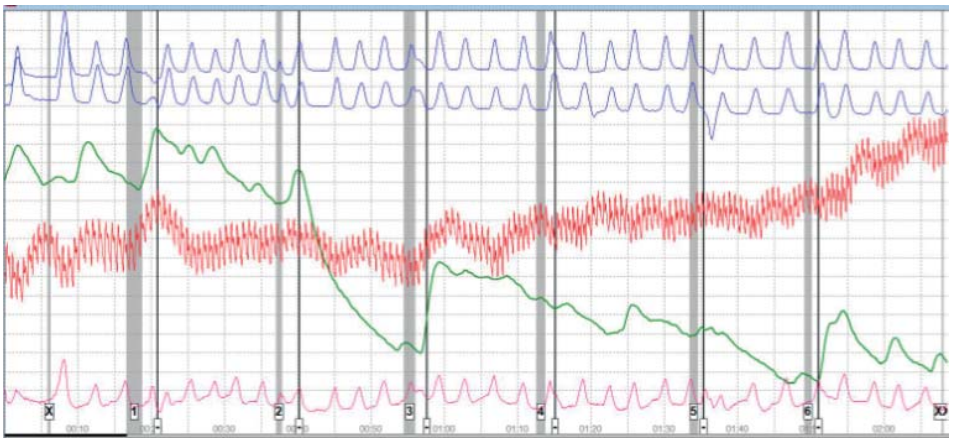


Figure 1. The CIT chart. During the CIT the examinee showed the highest response to the photo of Paul S placed in the third position

In the CIT the examinee had the greatest response to the stimulus presented in the third position in which the highest amplitude of electrodermal response occurred. An increase of the CA response baseline in the cardiovascular channel is also observed (i.e. an increase in blood pressure). According to the Lykken method, CITs are scored based on the response in the electrodermal activity channel. If the highest amplitude response occurs to a key stimulus, score is +2 points. The recorded examinee's arousal on the key element supports a different version than Artur G presented. Based on the CIT chart analysis, it was assumed that the examinee recognized the image of the victim Paul S.

Another format of recognition test was the Searching Peak of Tension where the key element is unknown. SPOT should be developed in advance of the examination in order to identify the information the investigator believes is most crucial

to resolving the case. SPOTs are used to locate evidence or identify accomplices. The American Polygraph Association classify this test as auxiliary (screening) tests, lacking evidential value

The searching peak of tension (SPOT) presented the names of people who might be connected with the beating of Paul S. They were selected on the basis of information about the social contacts of Artur G. These men were attending the football game on Sunday when the crime occurred. The SPOT construction was:

1. Was Adam N involved in the beating of Paul S?

2. Was Luke Z. involved in the beating of Paul S?

3. Was Przemysław K involved in the beating of Paul S?

4. Was Marek Z. involved in the beating of Paul S?

5. Was Piotr K. involved in the beating of Paul S?

6. Was Pawel A. involved in the beating of Paul S?

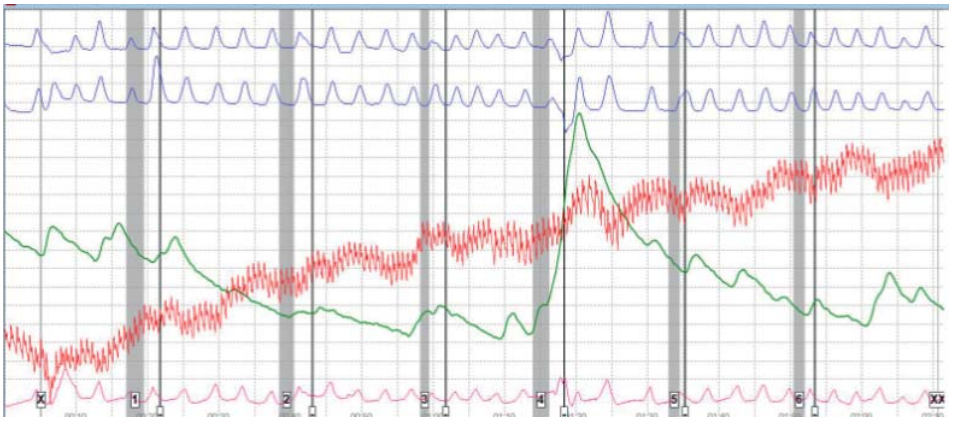


Figure 2. The SPOT Chart. During the test the examinee showed highest response to the name of Mark Z, which was presented at the fourth position

During the presentation of six names in the SPOT, Artur G. showed the arousal to the stimulus in the fourth position – the name of Mark Z. The highest reaction occurred in the electrodermal activity channel. As it mentioned before this type of SPOT has only an oriented value for police work. Therefore, no evidence value is attributed to it.

As the next test format, the UTAH Probable Lie Test (Utah PLT) was used. According to the methodology of CQT, the questions set is repeated a minimum of three times (Handler & Nelson, 2008). The basis of the CQT test, according to the concept of Relevant Issue Gravity (RIG), is that the attention of the offender focuses on critical questions, while the unrelated person focuses on control questions (Ginton, 2021).

The Utah PLT test consists of relevant questions (3), comparison questions (3), neutral questions (3) the sacrifice relevant question and an introductory question (Konieczny, 2009).

All questions in the Utah test, in accordance with the methodology, were discussed with examinee during the pretest interview before the test run. During this introduction, the polygraph examiner's primary responsibility, according to the RIG idea, is to draw attention to the comparison questions of the truthful examinees without affecting the salience of the relevant questions to the offender.

In this case the following set of Utah PLT questions was used:

1 Int. Do you understand that I will only ask you the questions we discussed?

2 SR Regarding the beating of Paul S., do you intend to answer all the test questions truthfully?

3 N Is it now June?

4 C Have you ever used violence against another person?

5 R Were you the one who beat up the man on June 10?

6 N Is it now Tuesday?

7 C Have you ever injured another person?

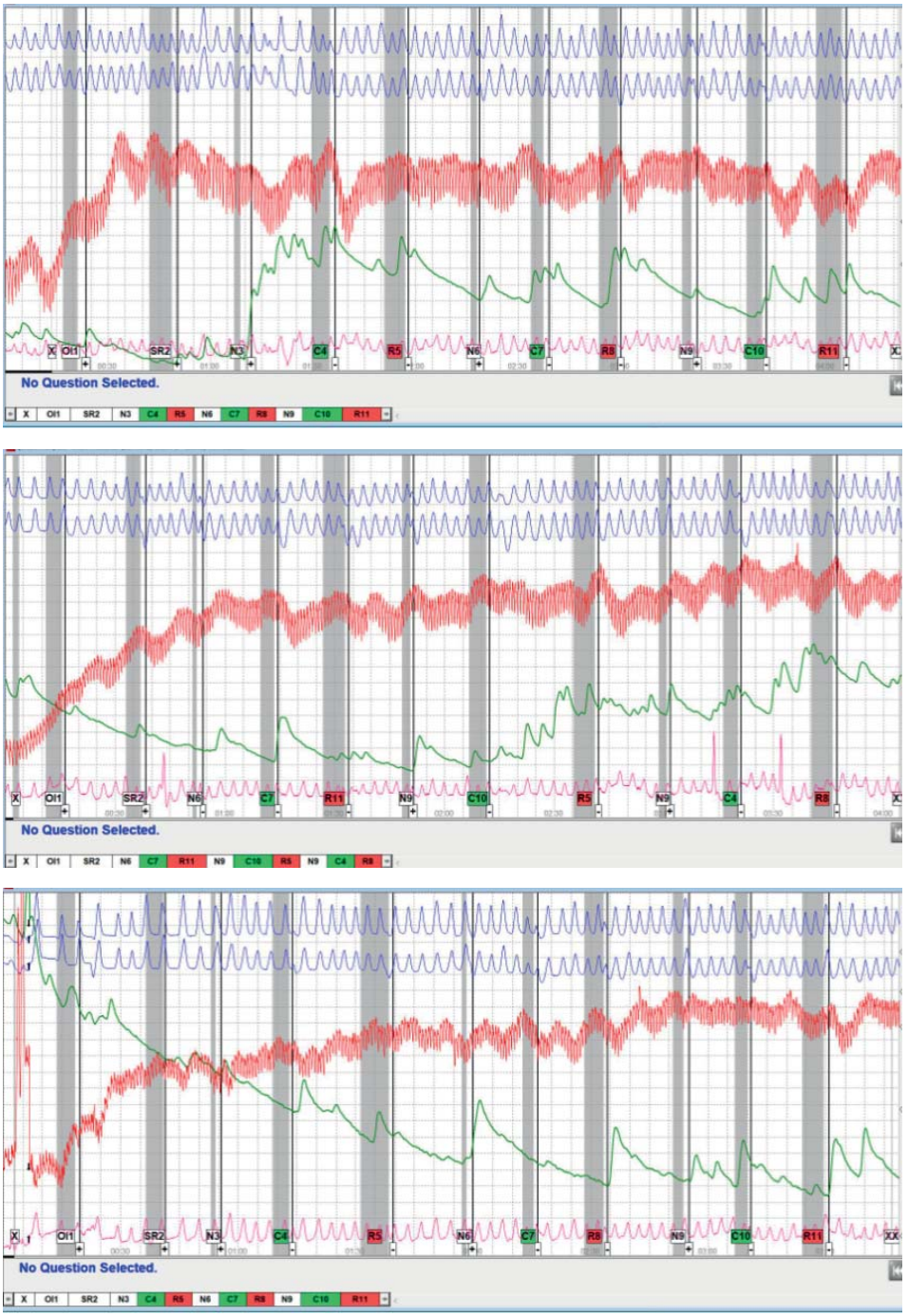
8 R Did you ask about this man at the local shop on June 10?

9 N Is it now 2018?

10 C Have you ever acted aggressively toward another person?

11 R Did you cause the injury of this man body on June 10?

The relevant questions of the test were answered „NO" by examinee.



Figures 3, 4 and 5. UTAH PLT Charts. The Grand Total score according to Empirical Scoring System is -10

Utah PLT test chart were evaluated in the three stages:

1) the global assessment – the quality of the recorded charts was examined to exclude the artifacts,

2) the numerical evaluation – according to Empirical Scoring System the Grand Total score was -10 what means that the final outcome is Deception Indicated.

3) the computer algorithm with proven accuracy (OSS-3).

The Utah PLT charts indicated the significant responses of examinee to questions R5, R8 and R11. Once scoring was completed, the scores was used to form a final opinion. According to the ESS's decision rules when the Grand Total is – 10, this score justified a call for the positive outcome.

The CQT format used in this case is a multi-facet test as its relevant questions relate to different aspects of one crime (the beating of victim and asking about him before the incident on June 10). When the relevant questions relate to a single issue like the beating, the test would be a single-issue test. Both formats have the same level of accuracy when they are scored using the Grand Total Rule.

Even though the R8 caused greater responses than other RQs, it is not reasonable to draw any conclusions about the meaning of the data from it (e.g. about the role of examinee in the crime). Nelson et al. proved that the multi-facet hypothesis is false. All published study on the multi-facet hypothesis has shown that when this test is treated as a multi-issue test its accuracy decreases (Nelson et al., 2021). The reason for this is that the questions are not independent (different verbs do not make them independent). Independent questions must have absolutely no shared source of variation so that anything that causes a response to one of the RQs can have no possible effect on the other RQs. To sum up, when analysing the test data, multi-facet exams are actually single-issue exams.

Attention should also be paid to the fact that results of the Utah PLT charts concurred the findings from the visual CIT administrated as the first test. The outcome of a single CIT cannot serve as the basis for a diagnosis, but it also cannot be disregarded because doing so could result in the loss of information that would be helpful to the police. It can be assumed that the showing of the victim's photo in the first CIT and the examinee's recognition of it contributed to higher likelihood of correct diagnosis in the Utah PLT.

The polygraph examiner in the forensic opinion stated:

The version given by Artur G, according to which he has no link to the matter under investigation (the beating of Paul S.), cannot be confirmed by analysis of the examinee's psychophysiological reactions during the polygraph tests.

It is important to note how the final conclusion was written since the examiner did not use the words "the examinee is lying" or "deception is indicated" because the emotional arousal was not caused by lying activity itself but by the significance of test stimuli. (Widacki, 1982). Many studies demonstrated that polygraph tests work even in a silent condition (when examinees are not required to answer the test questions).

Immediately after the polygraph examination had been finished, the examiner provided test results to the investigators. This valuable information, especially the examinee's response to the photo of victim, allowed them to break the impasse in the investigation. During the interrogation Artur G. admitted his participation in the beating and indicated the other perpetrators, including Mark Z. As the motive of the crime, he indicated Mark Z.'s desire for revenge against the victim Paul S. for the theft he had committed six months earlier. He also described the course of the crime.

Summary

The polygraph examination presented above proved its investigative rather than evidence value. The additional purpose of this examination was to cause a psychological effect which was crucial in this case due to the lack of other means of evidence,

Indicating Artur G. the positive outcome of his examination affected his attitude and caused the change of his tactics during next interrogations. He confessed and described the course of the crime, what contributed to obtaining valuable evidence. This was possible thanks to the CIT, which demonstrated that offender might know the victim and recognized Paul S. at the one of the photos, even that he had denied this previously.

Thus, it is justified to assume that in this case we were dealing with a "reversed police lineup" – it was the perpetrator who "recognized" the victim.

This investigation is interesting especially because, in the absence of crime witnesses and any other forensic traces that could be used to identify the offenders,

the police investigators decided to run polygraph examination. The examiner, besides the CQT, used the extremely rare visual version of CIT and the searching POT. The visual test consisted of a set of photographs, including the victim's photo and the searching test presented the names of people who may have been involved in the crime.

The outcome of the polygraph examination allowed to verify the police investigative version and to indicate the perpetrator of the victim's beating. The most important result was that police obtained evidences which indicated all five perpetrators of this serious crime and prove their guilt. The court used this evidence to apply the temporary arrest of the all offenders.

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