



EUROPEAN

POLYGRAPH

PUBLISHED QUARTERLY

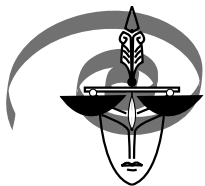
Volume 6

2012

Number 3 (21)



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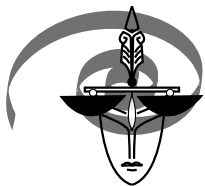
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Conditions and Requirements of Polygraph Examination

Key Words: polygraph examination in Hungary, criminal procedure, polygraph examination

The establishment of the honesty or dishonesty of a person giving testimony inflicts constant dilemmas on authorities participating in criminal procedures. The concerned authorities must continuously examine the trustworthiness of the accused and the witnesses so that the court shall not have to face the possibility, before making their decision, that some of the available evidence is “poor” or “fake” (Tremmel, 2006) as the testimonies given by the accused and the witness failed to stand up to examination. It is necessary to check the credibility of testimonies not only in the judicial procedure but also during the investigation phase, according to the recommendations of criminal tactics. Thus, within the framework provided by the Act on Criminal Procedure, the authority acting in the criminal procedure may confirm whether

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the data obtained from the testimonies is true or false. In my opinion, the testimony credibility examination is a kind of search for the truth, since, for finding the truth “good” evidence is necessary while all “poor” evidence has to be filtered out at all costs. It is within this screening procedure that instrumental methods of searching for the truth may be applied. The reliability of these instrumental methods has improved considerably over the past few years, a tendency which is expected to continue in the future. In Hungary, computerized graphometric examination, layered voice analysis and thermographic cameras are also applied besides the polygraph. Beyond our borders, however, the possibilities inherent in Functional Magnetic Resonance Imaging (fMRI), or in the Monoscanner, the Future Attribute Screening Technologies (FAST), the Silent Talker, the Psychological Stress Evaluator (PSE) or the Eye Thermometer are also known, to mention but the most important techniques. Of the diverse methods that examine the changes of the unconscious reactions of the human body in my present paper I focus on the polygraph examination. In our country the polygraph is the most commonly used instrument, as it is, in fact, all around the world.

The conducting of a polygraph examination is subject to certain conditions. Besides the necessary statutory regulation, some material and personnel conditions and requirements should also be satisfied. The material side comprises the polygraph instrument itself and the examination room where the polygraph testing is conducted. The personnel requirements imply the polygraph examiner and the subject of the examination (examinee).

1. Material conditions

1.1. The polygraph

The most important material requirement is the polygraph, a multi-channel instrument that simultaneously measures diverse changes in the activities of the human body (American Polygraph Association, 2011), and records these as curves either by writing needles on a paper tape, or on the hard drive of a computer. In order that an instrument may be employed as a polygraph, it must possess a minimum of three units each measuring distinct biological parameters – a pneumograph (a unit measuring the volume changes of respiration), a sphygmograph (a unit measuring the changes of blood pressure) and a GBR (a unit measuring the electric resistance or conductivity of human skin).

Today's modern instruments are at least four-channel devices that are capable of recording four different physiological parameters:

1. changes in respiration (chest expansion and the characteristics of the flow of air at inhalation and respiration),
2. changes in respiration (abdominal expansion and the characteristics of the flow of air at inhalation and respiration),
3. changes in the electric resistance and the conductivity of human skin (by electrodes attached to the fingers or the palms),
4. changes in blood pressure (by a blood pressure cuff attached to the upper arm).

Further parameters that may also be measured:

- recording the amount of blood flowing through the respective limbs by a photo detector attached to the fingers (pletismograph),
- detection of the examinee's activity of movement by detectors attached to the legs or the cushion of the examinee's chair,
- recording the rate of spontaneous muscle tension by an electric detector attached to the arm.

1.2. The examination room

The examination room, which is also a material requirement, should be located in a calm environment where the examinee is not exposed to external influences. With simple equipment and only a few pieces of furniture a low-stimulus area should be provided where nothing distracts the attention of the examinee who would thus be able to fully concentrate on the examination. It is useful to install a detective mirror in one of the walls of the room through which a member of the investigating authority or the prosecutor may monitor the examination. The presence of more than one examiner in the room would disturb the examination and the examinee would not be as open as in private with the polygraph examiner (Janniro, 1991).

2. Personnel conditions

2.1. Mental and health requirements

As far as the personnel side is concerned, everybody is suitable for taking the test who fulfils certain requirements (satisfactory health and physical status, etc.), and who is fully aware of the examination situation and is able to an-

swer the questions adequately. The examinee must comprehend that he must tell the truth, otherwise if he lies the polygraph will detect and reveal it. In the event of the examinee's absence of cooperation, the examination may not be conducted. Therefore, the examinee can be neither obliged nor compelled to take a polygraph test since the examinee's cooperation is necessary for obtaining a proper diagnosis. In practice, cooperation implies that the examinee follows the examiner's instructions and responds to the questions. The examination may not be conducted if the examinee suffers from some serious circulatory or respiratory disease. The examinee's mental and physical state should allow him to recognize and properly interpret the examination situation, to take the possible consequences of detection and denunciation into consideration, and to be able to produce the physiological activities that are necessary for rendering a diagnosis. Therefore, the examinee is not supposed to be too tired for the examination, nor should he be suffering from any great pain at the time of the examination.

2.2. The subject of polygraph examination

In international practice, the polygraph examination may be conducted for the examination of both the defendant and the witness, whereas in Hungary this possibility has always been debated. According to certain views, only the accused may be the subject of polygraph examination. Some others claim that the witness may also be tested. There has not been a consensus, either, whether polygraph examination may or may not be conducted in the court procedure for the examination of the accused.

Before summer 2011, the Hungarian Act on Criminal Procedure (Act XIX of 1998) regulated the polygraph examination of the suspect only. Section 180 (2) states that "Without the consent of the suspect, his testimony may not be examined with the help of a polygraph". Section 182 (2) states that "It is obligatory to employ an advisor if the testimony of the defendant is examined with the help of a polygraph during the investigation". The provisions of the law suggest that the polygraph may be used for the examination of the defendant during the investigation since the law mentions the polygraph in connection with the suspect. According to another interpretation, in the absence of prohibition, the accused may also be subject to examination.

According to the Act on Criminal Procedure the suspect's testimony may not be examined by polygraph. Consequently, a further requirement of polygraph examination is that it may be conducted for the testing of a suspect

who formerly gave testimony and did not exercise his right of silence. Nevertheless, in my view, it is not justifiable to deprive the suspect of his right to propose polygraph testing. The same may be established regarding the authorities, as the omission of the examination of a suspect who exercises his right of silence but is willing to take the polygraph test would impede the investigation. During my research I have discovered a number of cases in which the suspects insisted on polygraph testing even though they refused to testify. However, when they faced the test results most of them testified, and generally confessed to having committed the particular crime.

Until summer 2011, the Act on Criminal Procedure had not regulated the polygraph examination of the witness which lead to uncertainty among law enforcers since, according to certain interpretations, the law would have explicitly prohibited polygraph examination – if that had been the legislator's intent. Since, however, the law did not contain such prohibition, I agree with the view that the witness may also be subjected to polygraph examination. Nevertheless, the Chief Prosecutor's Office, according to their position expressed twice within the past six years¹, did not find the examination of the witness permissible. Yet, their position has not effectuated the omission of the polygraph examination of the witness from 2005. My research has confirmed that witness polygraph examinations are being conducted, though it always depends on the actual law enforcer whether the polygraph may be used for the examination of the witness in a given case.²

¹ The NF.3797/2005/10-1. The position of the Department of Supervision of Investigation and Preparation of Accusation of the Chief Prosecutor's Office issued in July 2005 on the scope of employment of polygraph lie detection permits the employment of the polygraph in the case of an adult suspect and forbids the same in the case of witnesses and complainants. The same is expressed in the Ig. 404/2009. Legf.Ü. Reminder, Article 209/b: 'With reference to polygraph examination, Section 41 of the Act XXXIV of 1994 (Police Act) contains rules that are partially different from those contained by Section 180 (2) of the Act on Criminal Procedure. According to Section 11 (2) of the Act on Criminal Procedure, the rules of the Act on Criminal Procedure are authoritative for criminal procedures. Since the testimony of the defendant may be examined with the help of a polygraph during the investigation according to Section 180 (2) of the Act, the polygraph may be employed exclusively in the investigation phase of the procedure and for the examination of an adult defendant. The Chief Prosecutor's Office based their position on the principle that the Act on Criminal Procedure is to be applied in all criminal proceedings, and the Police Act, or Section 12 (1) of the Act XVIII of 2001 on Arrest and Seizure Warrant, that otherwise allows witness polygraph examination, cannot overwrite the regulation of the Act on Criminal Procedure that declares that solely the defendant may be the subject of polygraph examination.

² According to advisors, this primarily depends on the interpretation of law by the prosecution.

On 4 July 2011 the Parliament passed a Bill on the amendment of other laws on procedure and the administration of justice which created a new situation as the amended Act on Criminal Procedure permitted the polygraph examination of the witness³ in cases of grave importance.⁴ The law does not specify the phase in which the witness may be subjected to polygraph testing, consequently it may be used during both the investigation and the court procedure. In practice, however, there is a contradiction regarding the assignment of an advisor in the court phase for the conducting of polygraph examinations. As the law does not permit this, the general practice is the assignment of an expert. In my opinion, this practice may not be considered appropriate, since, on the basis of the legislative intent, no expert opinion may be prepared about the polygraph examination. I believe, in cases when a polygraph examination is conducted in the court phase, the assignment of an advisor should be rendered permissible, with reference to the exception to the general rule, and in both phases, following the example of the hearing of the expert, the hearing of the advisor, as an act of procedure, should be introduced – wherein the advisor shall not be heard as a witness about the result of the examination, provided that it is necessary that the advisor responds to the questions of the court orally.

I believe, the legislator, by permitting the polygraph examination explicitly in cases of grave importance, has excluded the possibility of polygraph testing in other cases. If this is the correct interpretation of the legislator's intent – what is the reason for the prohibition of polygraph examination in cases of no grave importance? Given the reliability, requirements and guarantees of the polygraph examination, I claim that such differentiation is unnecessary.

³ Section 554/E of the Act on Criminal Procedure: In cases of grave importance the witness testimony may be examined with the help of a polygraph if the witness gives consent.

⁴ On the basis of Section 554/B of the Act on Criminal Procedure, cases of grave importance are, for instance, the Abuse of Authority (Section 225 of the Act IV of 1978 on the Criminal Code), the Establishment of a Criminal Organization (Section 263/C), all criminal acts committed in criminal organizations (Section 137, Article 8) and the graver cases of homicide (Section 166 (2a–j)). The procedural regulations concerning cases of grave importance are enclosed within the special procedures in the fifth part. The Hungarian Act on Criminal Procedure mentions among the special procedures the criminal procedure against juveniles, military justice, the procedure of private prosecution, the committal for trial, the procedure against an absent defendant, the waiver of court trial, the omission of court trial, and the procedure in the case of persons enjoying immunity. The main feature of special procedures is that this part of the law mentions only those rules that are different from the general rules.

My standpoint, which is in accordance with the official position of the Chief Prosecutor's Office, somewhat contradicts the position of the College of Criminal Affairs of the Supreme Court on Bill T/3522 on the amendment of the other laws on certain procedures and the administration of justice which states concerning the provision contained by the aforementioned Section 554/E (that has entered into force in the meantime): "The Act on Criminal Procedure currently regulates the polygraph examination of testimony in the case of the defendant and does not mention the witness. There is no prohibiting rule concerning the polygraph examination of the witness, therefore, the provision is redundant." In spite of the position of the Supreme Court, the prevailing Act on Criminal Procedure still contains the controversial section (as the controversial amendment was passed by the Parliament), which may imply that according to the legislator's intent the polygraph examination of the witness may exclusively take place under a special procedure, since the law specifies the provisions different from the general provisions among the rules of special procedures. However, the Supreme Court merely states that Section 554/E is "redundant" and not exclusive, therefore, the conclusion may also be drawn that the legislator intended to emphasize the possibility of the polygraph examination of the witness. Thus, the Supreme Court has failed to resolve the contradiction. Should the Supreme Court have defined their position earlier, they would have cut the long dispute short and would also have prevented the occurrence of different jurisdiction.

In the past few years, a number of concerns have been formulated regarding the polygraph examination of the witness. The witness, contrary to the suspect, is bound by the obligation to declare the truth and the obligation to cooperate. Therefore, if the examination of the witness is ordered, the "contradiction" arises that the authority presumes that the witness has lied, that is, the investigating authority and the prosecutor doubt the trustworthiness of the witness. This also raises the suspicion that the member of the investigating authority contemplates the possibility of the perpetration of perjury and that is the reason why the polygraph examination is ordered. In my opinion, this is an incorrect interpretation, as the witness is bound by the obligation to declare the truth and the authorities may even force the performance of this obligation by the instruments of public authority.⁵ Consequently, the witness

⁵ Before mentioning the witness, the opinion of the College of Criminal Affairs of the Supreme Court deals with the consent of the defendant: 'it is not by chance that the Act on Criminal Procedure requires the consent of the defendant for the polygraph examination of the defendant [Section 180 (2)]. If the witness does not wish to cooperate with the investigating authority and already lies when the controlling questions are asked, there is no reason for the conduction of

testimony may by all means be tested by polygraph examination without even contemplating the possibility of perjury. This, however, ought to be enclosed in Section 181 on the Questioning of the Witness of the Act on Criminal Procedure *de lege ferenda*, and thus the uncertainty would at long last come to an end. The regulations concerning the obstacles to testifying as a witness must also be considered: in the event of an absolute obstacle it should be forbidden, while in the event of relative obstacles, in accordance with the prohibition of self-incrimination, it would be used strictly in the case of the voluntary commitment of the witness. If there are no obstacles to testifying, the witness may, in my opinion, be obliged to take the polygraph test without his or her consent. If the witness refuses to participate in the examination or does not cooperate during truthfulness-detection, the prosecutor (in the investigation phase) or the court (in the court procedure) may even impose a disciplinary penalty on the witness.

The question arises, however, whether the result of a polygraph examination that may be incriminating for the subject of the examination may be used for proving the commitment of perjury. I believe, the answer is yes, provided the witness did not become the accused in the main case. Naturally enough, it is always the decision of the court whether they use the result as evidence. I must emphasize, however, that the result of the polygraph examination alone is insufficient for the declaration of the defendant's guilt – the establishment of which requires further evidence.

2.2.1. The person suspected of the perpetration of a crime – a suspect or a witness?

The dispute related to the polygraph examination of the witness is not new. It is rooted in the Act on Criminal Procedure that does not specify the legal status of the person suspected of the perpetration of a crime. If there is reasonable suspicion that someone has committed a crime, that person shall participate in the criminal procedure as the suspect. If, however, there is only a suspicion and there is not enough evidence to incriminate the suspected perpetrator⁶, the person is questioned as a witness and it is the legal status

a polygraph examination.' Thence it follows that the College does not find the consent of the witness to the examination necessary. I myself share this view, despite the fact that according to both Hungarian and foreign practice the prior consent of the witness is required for the conduction of a polygraph examination.

⁶ 'We would find it appropriate if there was no need for 'reasonable' suspicion for ordering the investigation and for declaring a person a suspect *de lege ferenda*. It would simplify the proce-

of the witness that determines the person's rights and obligations since the person who is merely suspected is not a real subject of the procedure. According to Erdei, Árpád, without the clarification of procedural rights the polygraph must not be used. Erdei is convinced that the polygraph examination of the witness is not permissible. The basis of his reasoning is that while in the case of the defendant the polygraph examination may well be advantageous, in the case of the witness the polygraph examination may rather lead to disadvantages.

On the contrary, Kertész, Imre claims that the polygraph examination may be applied in the case of the witness, too, if the honesty of the witness or the complainant becomes doubtful. In one of his writings Kertész states that he disagrees with the view that the suspected person may only be subjected to polygraph examination after the indictment of the defendant, and with the person's consent given without constraint. Kertész also disagrees that a person of unclear status cannot be subjected to the examination. In a constraint-free situation it is the right of any citizen to decide whether they give their consent to be subjected to the examination (Kertész, 1991).

In another of his papers Kertész writes that "in cases of voluntary consent a person should not be excluded, on the basis of the person's legal procedural status, from clarifying the person's role in the perpetration of a crime in this way (i.e. by polygraph examination) if the person wishes to do so. This requires that the concerned person may receive adequate information not only about the essence and the purpose of the examination, but also about the fact that the person may not be considered to be a suspect on the basis of the available evidence, has the right to refuse to participate in the examination and the person's doing so shall not be taken as incriminating for the person; with the person's consent, however, the person may contribute to the clarification of the circumstances of the crime, the exclusion of doubts arisen concerning the person and the termination of further examination of the person" (Kertész, 1992).

2.3. The polygraph examiner

The polygraph examiner belongs to the personnel side of the polygraph examination. According to Section 182 (2) „It is obligatory to employ an advisor

and render the defense of the concerned person more effective if it was revealed that it is being investigated whether the person has committed any criminal act, and the person would be given the possibility of defense from the moment suspicion falls on the person,' as Kertész, Imre claimed in 1992 (Kertész, 1992).

if the testimony of the defendant is examined with the help of a polygraph during the investigation". The Law has contained this provision since it came into force in 2003. This provision changed the legal regulation of the usage of polygraphs by replacing the former expert examination, conducted on the basis of the Police Act, with the procedure of the employment of an advisor who possesses special knowledge and skills, as regulated by the Act on Criminal Procedure.

According to the commentary of the law, the regulations relating to the advisor are not accidentally enclosed right after the regulations concerning the witness since the advisor, like the witness, has knowledge, expresses opinions, and gives information about the fact to be proved, that is about the given professional issue, and thus his activity bears a resemblance to witness testimony. The commentary adds that the advisor is not an expert; and basically not because of the advisor's special knowledge and skills or the depth of this knowledge but because of the advisor's legal procedural status. While the expert appears as an independent participant in the case, operating in a judicial organization separately from the authorities, the advisor provides assistance for the prosecutor and the investigating authority.

According to the explanation of the reasons presented by the Minister to the Act on Criminal Procedure, the activity of the advisor, as opposed to that of the expert, is not aimed at producing a means of evidence (expert opinion), the information given by the advisor is for informational purposes only. Therefore, as the employment of an advisor does not create a means of evidence, the prosecutor or the member of the investigating authority – provided that they are in possession of the necessary special knowledge – may generally disregard the employment of an advisor. The terminology "may generally disregard" refers to cases when the employment of an advisor is obligatory. The aforementioned conduction of polygraph examination during the investigation (Act XIX of 1998, Section 182 (2)) exemplifies such a case.

Before the prevailing Act on Criminal Procedure came into force polygraph examinations were conducted by experts, however, initially, there were cases in which criminal psychologist experts were assigned as advisors (Szíjártó, 1998). When the Act XXXIV of 1994 on the Police took effect, the expert became the exclusive polygraph examiner, who also provided an expert opinion on the result of the procedure. The Act on Criminal Procedure that entered into force in 2003 returned to the practice of the times before the Police Act,

however, obligatorily, the advisor became the polygraph examiner and the provider of an advisory opinion about the result of the examination.

In his opinion the advisor does not provide answers to the questions whether the subject of the examination committed the crime or not, whether the subject is guilty or not, neither does the advisor specify which testimony corresponds to the truth. Rather, the advisor provides an opinion about how, on the basis of the physiological changes of the subject during the testing, the honesty of the defendant may be judged⁷. In the advisory opinion, the following answers may appear concerning the respective questions: “the reactions of the examinee indicated deception”, “the examinee gave a misleading response”, or “on the basis of the reactions the honesty of the examinee is questionable”. The advisor may also hold that “the examinee gave honest responses”, or that “the reactions did not indicate deception”. If the advisor is unable to take a clear stand, the opinion may contain that “the truthfulness of the answer given to the question cannot be established”. In the future, the advisory statements will change since the Hungarian Institute for Forensic Sciences that coordinates polygraph examinations on a national level is aiming to standardize the possible advisory responses. Thus, the advisory opinion may state that “the response is deceptive” (the examinee has intentionally given an untruthful response; the examinee’s response is untruthful according to the examinee’s own knowledge; the examinee intends to deceive the examiner), “the response is not deceptive” (honest), or (the honesty of the response) “cannot be determined” (Hautzinger, 2004).

On the contrary, in international practice⁸, the advisory opinion states whether the examinee’s personality is globally “deceptive”, “not deceptive”, or, if this cannot be determined, then the examination is “unconvincing”. The advisory

⁷ The investigating authority generally asks the examiner whether the truthfulness of the information given by the subject of examination in connection with the criminal act is disputable or questionable (Mikolay, 2004).

⁸ Contrary to international practice, in our country the advisor does not examine whether the person is globally deceptive, rather the advisor establishes deception on the basis of the received answers for the questions. By this practice, in foreign countries, the rare mistake may also be eliminated that an answer to a question generates such physiological reactions that further influence other answers, and thus, even if the examined person’s further answers are truthful, his or her physiological reactions may indicate continuous deception. In foreign countries, when the examined person is called deceptive the examiner is not considered to have made a mistake since the examiner’s task was not to select and mark the critical deceptive answer. In Hungary, however, such practice would be considered a serious mistake.

opinion also contains the responses given to the questions asked during the polygraph examination.⁹

According to the explanations of the reasons presented by the Minister to the Act on Criminal Procedure, because of the characteristics described it is necessary that the polygraph is not operated by a member of the investigating authority or the prosecutor. Rather, the examination should be conducted by a qualified person, since it is the physiological data recorded by the polygraph from which the advisor concludes the existence or the absence of the examinee's excited state induced by the questions asked during the examination, and in order to properly interpret the data and draw conclusions adequate knowledge is required. The conduction of the examination itself also requires great expertise, generally not possessed by either the prosecutor or members of the investigating authority. Considering the fact that the polygraph examination represents some kind of psychological effect on the examinee's personality, only a specialist should be permitted to conduct the examination. And this specialist is the advisor.

2.3.1. Who may be a polygraph examiner?

The rules of law and the aforementioned explanations of the reasons presented by the Minister merely require that an advisor should conduct the polygraph examination, but there are no further regulations concerning the examiner. For instance, the necessary qualifications for an examiner are not specified.¹⁰ Before giving the answers to these questions, I believe, it is useful to outline the required competencies of a polygraph examiner.

The polygraph examiner interprets the graphic image of the recorded physiological changes and draws conclusions regarding the trustworthiness of the

⁹ In the case of a defendant accused of taking the law into his own hands, the advisor asked the following critical (that is, relevant) questions: 1. Do you still owe some part of the borrowed sum to X? (Answer: 'No'). 2. Do you still owe any part of the price of the purchased items to X? (Answer: 'No'). 3. Did X make the children sit in X's car so that X can blackmail you only on one occasion?(Answer: 'No'). 4. Did you purposefully mislead the police with your testimony? (Answer: 'No'). The advisor established that in the case of the answers given to questions 1, 2, and 3, the truthfulness of the accused is questionable.

¹⁰ Section 801.26 (b) of the American Employee Polygraph Protection Act of 1988 (EPPA) provides two requirements: the polygraph examiner must have a valid current license and a minimum bond of USD 50,000 that may serve as a guarantee of the fidelity of the examiner and also as a professional liability coverage.

subject of the examination directly from the intensity and formal characteristics of these changes (Krispán, 2004). The polygraph examiner must be able to create a special atmosphere for the examination that ensures that the results display the changes on the basis of which the examinee's deceptive intent, or the absence of such intent, may be diagnosed.¹¹ The advisor must ensure the cooperation of the examinee, and must direct the examinee's attention to the object of the examination all through the examination. Furthermore, the examiner must maintain a neutral and objective relationship with the examinee. The examiner's verbal manifestations, gestures and mimicking must all be kept under control and serve the purpose of maintaining the examinee's motivation to avoid detection all through the examination procedure (Krispán, 2004). The polygraph examiner must be able to interpret the examinee's meta-communication when the examinee enters the examination room, must be able to anticipate the examinee's personality features, the way the examinee should be addressed, the way the examinee's emotional manifestations should be handled, etc. If the examiner lacks this competence it will leave a mark on the entire examination and may even compromise its effectiveness.

The examiner must be in possession of the ability to ask the right questions during the polygraph examination. The examiner must not make distinctions on the basis of the examinee being male or female, rich or poor, young or old. The examiner must have a general interest in people, their conduct, behaviour and motivations. The examiner must be able to make the subject believe that it is most advantageous to tell the truth even if it leads to imprisonment. The examiner's every sentence and every movement must inspire confidence. The polygraph examiner must be an understanding, open and likable person. The examiner must have a good command of psychology, physiology, criminology and sociology, and must be able to formulate the questions so that they may be understandable for the subject. The examiner must possess at least an average – but preferably higher than average – level of intelligence (that is the reason why, in foreign countries, a university degree is a requirement), since all sorts of different people may turn up at the examinations. A further requirement for the examiner is to be well-qualified and have investigative experience. The examiner must be familiar with the mysteries of

¹¹ The advisors interviewed during the research claim that those subjects of the polygraph examination who committed criminal acts all believed, without exception, that they are able to deceive the polygraph. However, they unanimously declared that a well-prepared polygraph examiner would be able to detect and disclose all such attempts.

investigation like, for instance, the rules of conducting a survey of the scene of a crime, of the collection and recording of evidence. If the examiner is not familiar with the basics, he shall not be able to think for the examined person (Janniro, 1991).

The examiner must be highly motivated for the work and have a personality that renders him or her an appropriate partner for the person to be examined. Therefore, the examiner must be liked by others – be they friends or colleagues. Inbau claims that a lot of polygraph examiners do not meet these requirements, and, consequently, a poorly trained examiner who does not have the required personal characteristics has a tendency to make mistakes (Inbau, 1999).

In order that a polygraph examiner may correctly interpret the result of the procedure and may truly help the work of the investigating authority, the examiner must be able to correctly interpret the information available in the given case, reconcile the needs of the investigating authority and the possibilities and the professional requirements of the examination; and realize the type of information that needs to be clarified so that he may most effectively contribute to the success of the investigation. For this the examiner needs an extensive knowledge of criminology. According to certain opinions, the role of a polygraph examiner should be filled by a criminal psychologist with experience in criminology. They claim the establishment of personal suitability for being tested by polygraph examination definitely requires a psychologist (and it is of extreme importance in the case of criminals among whom abnormal personality structure is fairly frequent) (Brósz, Horváth, 1992). Others, however, believe that it is easier to retrain a detective than train a psychologist to be a polygraph examiner, since the special psychological knowledge an advisor must possess for the conduction of an examination is very little, and it is not psychotherapy but his knowledge of criminology which the examiner must utilize at the question planning stage, and during the examination.

In accordance with the opinion of polygraph examiners, I also believe that a degree in psychology should not be a requirement. However, a university degree that implies knowledge of criminology (earned primarily at the Faculty of Law Enforcement of the National University of Public Service – FLE NUPS, or at one of the Faculties of Law) should definitely be a requirement. Additionally, legislation should provide that the candidate must complete a course organized by the Department of Polygraph Examination of the Hungarian Institute for Forensic Sciences – HIFS (hereinafter HIFS; in Hungar-

ian BSZKI). This would be especially necessary since polygraph examiners have only trained one another in recent years. The standardized course would ensure that polygraph examiners conduct examinations at a similar level nationwide, and thus the subjects of the examination will not expect that certain advisors will not question the honesty of their answers and will not establish the involvement of the accused in the investigated case. A well-prepared and experienced polygraph examiner is able to detect if the subject of the examination intends to manipulate the examination result in various ways. The standardized course and the continuous professional control would guarantee that only those advisors who are able to detect attempts at deception and manipulation may conduct examinations. In addition to preparatory courses for the polygraph examination, compulsory training courses should also be organized by the HIFS for ensuring and maintaining the professional level of examinations.

In foreign practice, the majority of polygraph examiners employed in law enforcement possess both qualifications and experience in the field of criminal investigation. Generally, a college or university degree is a requirement, while no specialization is required (Krispán, 2004). Inbau claims that a polygraph examiner should not necessarily be a medical doctor or a psychologist, however, due to the requirement of a higher-than-average level of intelligence for the examinations renders it necessary that the examiner has a university degree (Inbau, 1999). For the appropriate conducting of examinations, and also for the maintenance of an appropriate level of skill, constant practice is required. Therefore, in those countries where polygraph examinations are extensively utilized, a minimum number of obligatory examinations per year has been established for the examiners and failure to pass these exams results in the examiner losing his license (Krispán, 2004).

Inbau claims, that even though a few weeks of intensive training would be sufficient for the acquisition of the knowledge necessary to operate a polygraph, ideally, the candidate should complete at least a six-month-long course. This course would provide physiological and psychological knowledge and the candidate would attend and monitor a number of examinations. It is also necessary for the candidates to perform their own experiments, conduct their own examinations under the supervision of their instructor, and study and evaluate the polygraph examinations of several such cases in which the final decisions have already been reached. The course should also provide practical guidelines that are based on impressions and personal experiences. Participants of the course should become familiar with such psychological

and tactical methods that will enable him to provide the authorities with testimony or important data in future cases when the subject of the examination proves to be dishonest. It is also a requirement that an instructor supervises no more than six candidates, in order to ensure the effectiveness of the course.

Inbau finds it necessary for the polygraph examiner to focus solely on polygraph examinations, and not to be employed as an expert in any other field. He claims that the police are making a mistake when they fail to comply with this rule. At the beginning of their career, polygraph examiners, similarly to lawyers, should consider the polygraph as their “jealous wife” (Inbau, 1999).

2.3.2. Quality Polygraph Examination

The polygraph examiner, the examiner’s preparedness and the applied instrument together determine the quality of the examination. The quality related to the examiner may be maintained and improved by compulsory training, on the one hand, and by continuous quality control, on the other hand. In cases when quality control reveals that the examination conducted by the examiner does not meet professional requirements, the HIFS shall point out the error. If they identify new errors later, the polygraph examiner must be monitored by an experienced HIFS-advisor for some months so that the examinations conducted by this examiner cease to be unprofessional. As soon as the necessary ability is acquired, the examiner may again conduct examinations independently.

Continuous control has been exercised since spring 2011, when the Department of Polygraph Examination was established at the HIFS. In our country, the institution of quality control is not new, it was already a general practice at the time of centralized polygraph examinations. In later years, however, quality control has been exercised insofar as examinations are repeated with the participation of another polygraph advisor or expert. The advantage of the present system is that the polygraph examiner immediately forwards the data of the examination by e-mail to the central HIFS-server. Thus, there is no lengthy waiting period for examination results, nor does compliance with the chain of command take time. Nevertheless, this method is not suitable for making it obvious from the data of the findings why the examined person’s physiological reactions changed. Was it only a reaction to the question asked, or to the examiner’s intonation or glance, etc. If, for instance, a mobile phone starts ringing when a question is asked the examiner must make a note of it

in the recordings, but if no such palpable event occurs during the examination the HIFS-supervisor may not know the answer either and may only criticize the questionnaire or the non-recognition of clear physiological changes. The examination may be made more efficient by installing a web-camera to the advisor's laptop which would record, in addition to voice-recording, both the examiner's and the examinee's behaviour, expressions and look. The newest HIFS instruments have built-in web-cameras, however, due to the size of the image recording file it may not be forwarded to the server of the HIFS so this means of control is, in fact, still unavailable. The situation is expected to change, but the exact date of the change is not yet known. If the polygraph examiner received information about the outcome of the case it would serve as a kind of feedback and would also help improve the quality of examinations. Such feedback would reveal whether the polygraph oriented the investigation adequately, whether the examination was followed by a confession, whether the requested material means of evidence was found, and whether the court considered the advisory opinion about the subject's involvement in the crime, etc. According to Lykken, the polygraph examiner, contrary to an engineer, for instance, is unable to recognize and face mistakes made during the examination since the examiner does not receive any information about the case following the examination (Lykken, 1987). This causes problems not only in Hungary but also abroad, therefore, the situation should be changed. However, considering the fact that, after the filing of an accusation, the member of the investigating authority is not informed either about the future of the case he investigated or examined – realistically, it will take a fairly long time before we may welcome any change.

3. Final thoughts

A good quality polygraph, a stimulation-free examination room, a well-prepared and experienced polygraph examiner, and a subject who is suitable for the examination are all prerequisites of a successful polygraph examination. In our country, the requirements are fulfilled as far as the material side is concerned, however, as far as the personnel side is concerned, certain changes are necessary.

Proposals for changes concerning the subject of the examination:

1. In accordance with international practice, the conducting of a polygraph examination of the witness should be permitted in our country, too – and not only in cases of grave importance. Since it is the Act on Criminal Pro-

cedure that contains provisions as to the polygraph examination of the suspect in Hungary, the possibility of the polygraph examination of the witness should be enclosed in Section 181 about the questioning of the witness *de lege ferenda*. The rules relevant to the obstacles to witness testimony should also be taken into consideration: in the event of an absolute obstacle, the polygraph should not be applied at all, whereas in the event of relative obstacles, in accordance with the prohibition of self-incrimination, it could only be used in the event of the voluntary commitment of the witness. Where there is no witness testimony obstacle, the imposition of a disciplinary penalty should be made possible if the witness does not submit to a polygraph examination or does not cooperate with the examiner during the polygraph examination.

2. Due to the inaccurate regulations of the Act on Criminal Procedure, law enforcers are divided on the question whether polygraphs may be used during court procedure. In my opinion, the law should provide the possibility for the use of a polygraph in the court phase.¹²

I believe that the implementation of the proposals concerning the subject of the examination would render jurisprudence more uniform and would terminate the years-long disputes about statutory interpretations.

Proposals for changes concerning the polygraph examiner:

1. The current Act on Criminal Procedure states that polygraph examinations must be conducted by an advisor. In my opinion, it is unnecessary to change this provision, and there is no reason to require an expert opinion about the outcome of the procedure. However, similarly to the former Act on Criminal Procedure (Act I of 1973) the employment of an advisor solely for the event of polygraph examination should be made possible again.
2. The Act on Criminal Procedure should contain a provision that at the court procedure the polygraph examination of the testimony of both the accused and the witness is conducted by the advisor.
3. The procedure of “hearing the advisor”, the events and content of which shall be recorded in the minutes, should be introduced in the Act on Criminal Procedure. At the hearing, both the defendant and the counsel for the defense should be able to question the advisor, and if a witness was also examined then the witness, too, could ask questions of the advisor.

¹² At the end of Section 288 (Chapter XIII, Title I of the Act on Criminal Procedure) regulating the questioning of the accused the following addition may be placed (in a new paragraph): ‘the testimony of the accused may not be examined by polygraph without the consent of the accused’. The same provision may be implemented concerning the witness, following Section 294, with the difference that the consent of the witness shall not be required.

4. The advisor conducting the polygraph examination should be required to complete a HIFS-course and also to possess a college or university degree that implies the acquisition of knowledge in the field of criminology.
5. Continuous training as well as official (HIFS) control should be ensured for the advisors.

The standardization of qualifications for polygraph examiners, the obligation to complete a special course, and participation in continuous training would facilitate that only advisors who possess the adequate skills and knowledge would conduct examinations. This is necessary, since, the personnel and material sides compared, the advisor is obviously one of the most important factors of the examination. However modern the polygraph instrument may be, if the examiner is not sufficiently prepared the results of the examination may not be utilized for the assessment of the credibility of the testimony.

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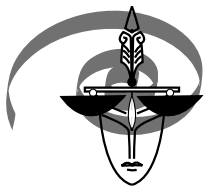
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Review of Research on Detecting Deception Through Functional Magnetic Resonance Imaging (fMRI)

Key Words: Functional Magnetic Resonance Imaging, forensic neurophysiology, detection of deception by fMRI

New imaging techniques have given us a great opportunity to recognise the processes that take place in the human brain, and the interest of forensic sciences in this area of knowledge should come as no surprise. The key is to understand the processes that take place in the brain when telling a lie, which – in a broader perspective – can lead to the development of a technique allowing error-free detection of deception.

Imaging through functional magnetic resonance imaging (fMRI) is one of the neuroimaging techniques that is hoped to provide a failsafe lie detector. To this

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day, a sizeable number of experiments using the technique have been conducted all over the world, while forensic scientists have been keen on following its development (see e.g.: J. Widacki 2007). The goal behind the article is to present a review of the most important current studies related to the problem.

Technological progress makes it possible to become increasingly familiar with the lie related processes taking place in the human brain. In the first studies of these processes, the potential evoked by a particular stimulus (Event Related Potential) was used, yet due to the low spatial resolution, the method is being slowly abandoned (Abe 2009). A more advanced technique of neuroimaging is Positron Emission Tomography (PET), yet the cost of its use is very high, which is why functional magnetic resonance imaging (fMRI), a technique cheaper than PET and more precise than ERP, is commonly used.

One of the first experiments conducted with the use of fMRI was the one conducted by Spence and collaborators (2001) less than twelve years ago. Participating in the experiment were 40 subjects, who had earlier expressed their consent in writing. However, not all the people were placed in the scanner. Connected to the machine were only 10 (individually entering) participants, while the remaining group of 30 people were tested outside the scanner. The subjects were asked specific questions, and in answering all of them they had to answer by telling both the truth and by lying. In the experiment conducted, the scientists noticed that when the participants tried to lie the reaction time increased insignificantly, and specific regions of the brain (ventrolateral pre-frontal cortex) became activated (Spence 2001). The experiment conducted by Spence and collaborators (2001) initiated a large volume of research that aimed at finding what is responsible for a lie at the neuronal level (Abe 2009).

Research on seeking the areas of the human brain related to lying has gained momentum. Less than a year after the experiment described by Spence and collaborators (2001), the results of an experiment conducted by Lee et al. (2002) were announced. Natives of China were selected for this experiment, all strongly right-handed, and all having successfully passed health tests. The subjects were asked to simulate problems with memory, which was to lead to an intentionally mistaken solution of two memory tasks. The first task was a test composed of two stimuli, each being a three digit number. The participant was presented with the numbers in certain time intervals (2.25 sec). Once both the numbers had been displayed, the subject was to state whether the two numbers presented (stimuli) were the same. The second question included autobiographical questions related to the subject. The participants were asked

questions of the “Where were you born?” type. The authors of the experiment observed activity in various areas of the brain in the subjects. Increased reaction time and increased activity of the brain were registered in the prefrontal cortex, temporal cortex, parietal cortex, posterior cingulate gyrus, and the caudate nucleus.

Published in the same year was another, equally interesting, experiment using the fMRI. The experiment was conducted by Langleben and collaborators (2002). It is worth mentioning as it combined the guilty knowledge test (GKT) and the aforementioned functional magnetic resonance imaging. Initially, the test involved the participation of 23 right-handed subjects (12 women and 11 men), aged from 22 to 50, with an average age of 32. However, five subjects had to be excluded due to artefacts. Regular playing cards were used for the experiment, and the participants had to – simplifying the matter greatly – answer (by lying or telling the truth) questions concerning the cards shown. Increased activity and reaction time were also observed in this study, among others, in the area of the superior frontal gyrus, interior cingulate cortex, and interior parietal cortex. A number of significant conclusions were drawn from this experiment: an attempt at limiting or withholding the true answer by the subject can be considered an intended lie, and the superior frontal gyrus (SFG) and the anterior cingulate cortex (ACC) can be considered the areas of the brain responsible for lying. Moreover, the use of the fMRI technique for distinguishing between true and false answers was corroborated.

Three years after Langleben et al.(2002), the same group conducted another experiment. In 2005, they used a slightly modified guilty knowledge test. The experiment was conducted again with cards, but this time the experience included a remuneration of \$20, which was to make the test in a way closer to the conditions present in the natural environment. Participating in the experiment were 26 right-handed people. The experiment conducted by Langleben et al.(2005) was the first attempt at a quantitative estimation of the precision of lie detection with the use of the fMRI technique. The precision in discerning lie from truth was 78%. The first experiment that was to define patterns of neuronal activity for lying, and true and false memories, was the experiment conducted by Abe and collaborators (2008). Participating in the experiment were 28 right-handed native Japanese, who had all successfully passed medical tests. The experiment used a list of words that were used to trigger errors in the memory of the participants. In the experiment conducted in this way, the supervisors of the examination determined that providing false answers results in increased activity in the prefrontal cortex area.

Most experiments using fMRI conducted to detect lie took place in premises designed for conducting such studies in isolation from the natural environment. Which is why, besides the introduction of gratification motivating the participants, interest began to focus on the moral aspects of such tests.

A good example is the experiment published by Green and Paxton (2009). To bring the conditions as close as possible to natural, they introduced monetary remuneration. The subjects were given money for the correct naming of the side of the coin displayed on the computer monitor (special application was used for dropping it). The participants had to write down their predictions or immediately provide oral answers. It must be mentioned that the subjects could try to cheat the researchers to obtain remuneration. Green and Paxton observed an increased activity of the prefrontal cortex area accompanying deception. Moreover, this form of activity also appeared in cases when participants tried to refrain from lying. In turn, in people who were sincere and honest, no increased activity in the aforementioned area was registered. The experimenters put forward a thesis that sincerity is related to the absence of temptation rather than to an attempt at countering it. Nevertheless, the experiment was the first attempt at finding a link between lie and an attempt to infringe on moral norms, and defined new directions of research.

Trying to bring experiments closer to the conditions present in the natural environment, Kozel and collaborators (2009) used a sabotage related design. In the experiment, participants were divided into two groups. The task of one was to take into possession and destroy CDs with incriminating evidence, while the other did not perform such an action. Going further, the respondents from the first group had to collect an envelope from an experimenter, while the other group did not perform the task. Both the groups were later to claim that they collected the envelope and did not attempt to destroy the CDs. Later, another task, called the Ring – Watch Test, was conducted; in this case, the participants were to take a watch or a ring. The subjects were asked to lie about this. Out of the group of 36 people participating in the Ring – Watch Test, lie was detected in the case of 25 participants. The Ring – Watch Test made it possible to select a specific number of people who were subjected to a single fMRI scan, this time concerning the test with envelopes and CDs. In the selected group of 25 people, nine out of nine participants of the CD and envelope trial, and five out of 16 of the Ring – Watch Test were correctly identified (Kozel 2009).

One of the new directions of research was examining not only healthy people but also ones who were unwell, or had traumas of neurological origin. A good

case of such an experiment is the one conducted on patients with Parkinson's disease. The experiment was described and conducted by Abe and collaborators (2009). As is known from medical literature, Parkinson patients are more truthful than healthy people. Abe et al.(2009) tried to prove or deny that. Participating in the experiment were quite a large number of subjects, who were divided into two groups. The first consisted of 32 people affected with Parkinson's and 20 healthy individuals. The second group, in turn, was composed of 14 healthy people (seven women and seven men). Participants in the experiment were shown photographs, and later were asked questions concerning the illustrations. As can be guessed, the subjects were asked to lie or to tell the truth. In this study, Abe and collaborators (2009) used the PET technique. The researchers corroborated the hypotheses that people affected with Parkinson's are more likely to tell the truth than healthy ones. This is probably caused by a dysfunction of the prefrontal cortex. Moreover, the experiment showed that there is a powerful link between the prefrontal cortex (or to be more precise: left dorsolateral prefrontal cortex) with the processes that constitute a lie, and that the unique truthfulness of Parkinson patients has neurological grounds (Abe 2009).

Another good example of this type of experience comes from the experiment described by Kikuchi and collaborators (2010). Participating in the study were people who suffered from psychogenic (dissociative) amnesia. The experimenters observed activity of the right dorsolateral prefrontal cortex, probably related to the unconscious suppression of memory.

The experiment aimed at recognising the reactions of people observing attempts at deception was conducted by Grezes and collaborators (2004). The experiment consisted in watching videos and the subjects being later asked to answer whether the weight of the box lifted was actually as big as the expression of the actors suggested, or whether the actors were trying to deceive the viewers. The experimenters observed a major increase of activity in the rostral part of the anterior cingulate cortex area and in the amygdala in people who believed that the actor was trying to deceive them. Moreover, similar experiments conducted two years later by Grezes et al.(2006) revealed an increase of activity in the area of the amygdala when the subjects realised that the actor had deceived them.

In a somewhat different experiment by Harad and collaborators (2009) concerning moral assessment and lying, a significant increase of activity was recorded in the caudate nucleus, medial prefrontal cortex, lateral orbitofrontal cortex, the left temporal lobe, and the left temporoparietal junction (TPJ).

Worth noting is the test whose results were published by Etcoff (2000), who stated that participants of the test suffering from aphasia, probably caused by a left middle cerebral artery stroke, which made them lose linguistic abilities had much better capacity in lie detection than healthy individuals. Etcoff's discovery (2000) resulted in putting forward a hypotheses that the regions of the left hemisphere of the human brain play a small role in the process of human lie detection. Varied activity of the many areas in the brain during experiments with functional magnetic resonance imaging concerning lie detection poses a major problem. A number of studies to corroborate the claim have been conducted.

An experiment undertaken to define the existence of a specific area in the human brain that would show activity during the process of lying in every subject was conducted by Montelone and collaborators (2009). Unfortunately, the results of the study were not in line with expectations. The experimenters ascertained that so far it is impossible to define a specific area of the human brain, identical for every person, that would be responsible for lying. However, as was noticed in the earlier studies, the area of the medial prefrontal cortex (mPFC) showed certain activity. As Montelone and collaborators (2009) remarked, the technique of functional magnetic resonance imaging does not seem to discriminate processes that would be unique for deception.

In another experiment, Lee and collaborators (2010) tested neuronal correlates of lie related to affective information. Besides fMRI, the experiment also used the International Affective Picture System (IAPS), a collection of illustrations subjected to the process of standardisation. Thanks to such composition of the set, the experimenters can choose photographs providing particular stimuli causing various emotions. Lee et al.(2010) assumed that activation of the human brain while uttering a true statement should significantly differ from activation while lying. Participating in the experiment were 14 right-handed males from the age group of 25–39, with the median at 29.44 years. Every participant was tested for psychological and neurological conditions. The study did not cover the results obtained from one of the subjects, as the person was unable to complete the experiment. The IAPS was slightly modified for potential cultural differences. The stimuli were provided by IAPS illustrations; 96 photographs were used in all, with 48 of them aimed at causing positive emotions, and 48 – negative. Simplifying assumptions, the experiment had the subjects answer (falsely or truthfully) the question of the type “What sensations does this photograph cause in you? Positive or negative?” The respondent was provided with information whether he or she was to use the button that attested

that the subject was telling the truth, or whether his or her task was to deceive the asker of the question. For example, when the message “lie” was displayed with a photograph causing negative emotions, the respondent was to convince the psychologist that in his or her case the photograph shown evoked positive emotions (Lee and collaborators, 2010). The experiment conducted by Lee and collaborators (2010) used event related design. Eighty trials were conducted, each composed of two parts, with one half containing negative stimuli, and the other – positive, in random order. The supervisors observed increased activity among others in parts of the brain including the left superior medial frontal, left middle frontal, and left inferior frontal when the participant lied, yet if the subject told the truth, the increase of activity was present among others in the left superior frontal, right calcarine, and right postcentral. The people deceptive about the illustrations that were to trigger positive emotions showed greater activity in areas including the right middle frontal gyrus, and left middle cingulum gyrus; moreover, greater activity in the visual perceptual system and the area responsible for emotions was discovered (Lee and collaborators, 2010). When the subjects were deceptive about illustrations that pointed to negative emotions, increased activity was observed in the left inferior orbital frontal gyrus, and left lingua. The experiment conducted by Lee et al.(2010) shows a certain type of interaction between cognitive processes accompanying lying and emotions. Increased reaction time and increase of activity in the frontal-parietal area is present, independent of the affective stimulus. Yet, one may hypothesise that the increase of activity in the remaining areas may be caused by the emotional stimulus. It must be noted that the neuronal correlates of lying do not depend only and solely on the type of deception, but also on the emotional value. Such an approach to research may allow acquiring information concerning lying for profit, and deception in fear of punishment (Lee and collaborators, 2010).

It is worth remembering that the problem of the stability of lie detection is not limited only and solely to the functional magnetic resonance imaging. Other methods of neuroimaging are used with greater or lesser success. Interestingly, to achieve better, and hence more precise, results the fMRI is combined with other methods of neuroimaging (Positron Emission Tomography (PET), Nuclear Magnetic Resonance (NMR), magneto-electroencephalography (MEG), and electroencephalography (EEG)), and with deception detection techniques developed earlier.

The experiment conducted by Seth and collaborators (2006) proved that magneto-electroencephalography can be helpful in defining areas responsible for lying.

Positron Emission Tomography (PET) is one of the neuroimaging techniques that was also used in experiments on detecting deception. In an experiment described by Abe and collaborators (2006), it was proved that prefrontal cortex activity can be linked to deception. Participating in the study were 14 males who had no history of psychological or neurological conditions. All the participants in the study were right-handed, with the average age of 20.4 years. Before the planned brain scanning, the subjects had to participate in tests, in which they coloured pictures, played instruments, and solved puzzles. Every task was designed so as to be different than the others, which means that every picture coloured presented something else, and the instruments played were of different type. Later, during a PET scan, the subjects were presented with photographs of the instruments they played and objects and figures they had coloured. The photographs also included new pictures and objects that they had not encountered during the experiment. One of the tasks of the participants was to tell the truth or lie about the illustrations shown. The experimenters observed greatest activity during attempts at deception in the area of the prefrontal cortex (Abe and collaborators, 2006).

The large number of experiments using the fMRI helped beyond doubt to expand our knowledge of the processes taking place in the human brain. In most experiments, an increase of activity in the prefrontal cortex was observed, which can prove that this region plays the main role in the process of deception. Nevertheless, it must not be forgotten that in some experiments the region was not the main area of increased activity. This is why focusing studies solely on this area still seems to be highly problematic (Abe 2009). As rightly noted by Sip and collaborators (2007), functional magnetic resonance imaging replicates the problems present in the polygraph. One can quote here, for example, the case with the manipulation of the BOLD signal by the subjects (Bles and Haynes, 2008). Nevertheless, there are hopes for detection of the aforementioned attempts of manipulation (Sip and collaborators, 2007).

These are not the only problems with fMRI. As is generally known, the experiments are conducted on a well selected group of participants, in most cases right-handed, of the same gender. Testing with the use of fMRI was conducted with individuals in isolation. It must be taken into account that people who have committed a crime and will be examined later will strongly differ from such a rigid selection (Sip and collaborators, 2007).

In turn, the factors determining the decision that the given person should lie are not constant or permanent, and depend on beliefs and convictions. Hence

these factors will change in every subject, and must be taken into account during an fMRI study. A good though extreme case that can illustrate the problem is psychopathy (Sip and collaborators, 2007).

As J. Widacki (2007) rightly remarked, the use of neuroimaging methods also brings various new problems of an ethical and legal nature. The use of neuroimaging methods may lead to an excessive encroachment on human privacy, which is why a set of principles that will be able to fill in the gap should these new methods be used, whether in lie detection or for other reasons, should be developed.

The last problem that fMRI causes is of a technical nature. First, fMRI scanners are bulky devices that cannot be moved as simply as a polygraph, which can prove a difficulty. A phenomenon encountered during the fMRI is the so-called scanner drift. The device requires plenty of energy to be able to work for an extended period, which makes the image of the scanner “hover” due to heating. Nevertheless, it seems that – thanks to rapid technological progress – this problem will be the first to be solved.

The use of a guilty knowledge test in experiments with fMRI seems a good solution when it comes to lie detection, which is why experts should use it more frequently (Sip and collaborators, 2007).

It is difficult to define clearly the diagnostic value in the case of experiments conducted with the use of the functional magnetic resonance imaging to discover deception. Bles and Haynes (2008) claim that in *certain* experiments, the precision of the method exceeds 90%. Reaching this value is declared also by NoLieMRI, a company offering fMRI lie detection and quoting similar information on its website (noliemri.com/products/overview.htm; see also: Davatzikos C. *et al*, 2005; Wolpe P.R. *et al*, 2005).

Despite numerous experiments conducted with fMRI, plenty of doubts concerning the precision of the method remain, and the path to the development of a tool allowing lie detection based on fMRI seems long and uncertain. It must be stated clearly that, with the current advancement of development, implementation of the fMRI method in forensic sciences practice is definitely premature. This status quo will not change until the new method has met APA and ASTM standards.

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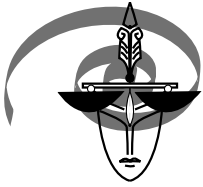
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Effect of the Stimulation Test Administered Before and After the First Relevant Chart of the Control Question Test

Key Words: stimulation test, polygraph examination, control question test

During the pretest interview of a psychophysiological veracity (PV) examination, every effort is made to allay any fears the innocent examinee may have regarding the accuracy of the results of the examination, by explaining the scientific principles involved in the test, the sophistication of the polygraph instrument, and the complete objectivity of chart analysis through a numerical quantification system or computer algorithm. However, the best pretest interview by the most competent polygraphist may sometimes fail to convince an examinee of the accuracy and reliability of the PV examination. In these cases, an innocent examinee may be concerned that the test may reflect that he lied to the relevant or crime questions, which in turn will cause

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the relevant questions to become a threat to his well-being. This threat will be competing with the control (comparison) questions rendering the charts more difficult to analyze and in some cases false positive or inconclusive findings may occur.

The Stimulation Test is designed to reassure the innocent examinee of the accuracy of the test and of the competency of the polygraphist administering the PV examination. It also serves to stimulate the innocent and guilty examinee. However the Stimulation Test also serves as a *control test* to establish the examinee's capability and manner of response to a known lie under controlled conditions. It is also important that the examinee perceives the *control-stimulation* test as the means by which the polygraphist acquires a *known deception exemplar* from the examinee, thus will not relate that role to the exclusive or non-exclusive control questions, which are used for comparison with their neighboring relevant questions. Otherwise the control (comparison) questions can become as strong as or stronger than their neighboring relevant questions if a guilty examinee perceives the control questions as the means by which a *known deception exemplar* is obtained for comparison with the relevant questions thus producing a greater threat from the control questions and an invitation to use countermeasures. (See Matte 1998, Matte & Reuss 1999). The control-stimulation test should be administered before any of the relevant tests related to the target issue so that each succeeding test will have been subjected to the same psychological influence. While this statement is not in agreement with those polygraph techniques of the Reid Technique persuasion that use the Stimulation Test as the second chart, between the first and second relevant test chart, the following published research and empirical data reveals a persuasive argument for its use as the first chart before the administration of the relevant tests.

It should be stated at the outset that the Backster Zone Comparison Technique (Adams 2012), the Quadri-Track Zone Comparison Technique (Matte, 1996, 2011), the Integrated Zone Comparison Technique (Gordon, 2012), the Utah Zone Comparison Technique (Handler & Nelson 2009), the Air Force Modified General Question Technique (APA 2011a) and the Federal Zone Comparison Technique (APA 2011b), all administer the Stimulation Test as the first chart, before any of the relevant tests are administered. In addition, Stan Abrams in his 1989 book "The Complete Polygraph Handbook" (P. 65-66)¹ stated that "although the majority of examiners who use a stim

¹ J. Widacki (2009; Abrams 1989, 120). Page 120 refers to the Stimulation Test as one of the six different test types used in the Reid Control Question Technique.

test prefer to position it after the first test, the writer feels that it is more appropriately administered first. Because the examinee has been told that the test's purpose is to determine the pattern of tracings when he or she responds deceptively and to ascertain whether the examinee is a fit subject for testing, it appears more logical to test him or her on this procedure prior to the actual examination. Moreover, this permits the polygraphist to separate this test from the chart and show it to the subject demonstrating how easily a lie is detected. This is more effective than simply informing him of the number on which the subject lied."

Abrams reiterated his use of the Stimulation Test as the first chart in "Polygraph Testing of the Pedophile" (Abrams 1983, P.66).

Furthermore Jerzy Konieczny, 2009; Richard Hickman, 1978; Keith Fingerhut 1978; Kenneth Scarce 1978; recommended administering the Stimulation Test as the first chart in the series of tests.

Logically, a sensitivity test should be conducted as the first test before any of the relevant tests. To do otherwise may raise an examinee's suspicion that something went wrong in the first relevant test, arousing the innocent examinee's fear of error, thus redirecting the truthful examinee's psychological set from the control questions onto the relevant questions.

However, several published studies regarding the effectiveness of the Stimulation Test were reported (Widacki, 2009) which indicated that the administration of the Stimulation Test as the second chart was indeed effective in increasing the strength and diagnostic value of the autonomic responses to the control and relevant questions for the innocent and deceptive respectively (Senese 1978; Decker 1978; Krzyscin 1980; Widacki 1982, 2008; Reid & Inbau 1966, 1977). Nevertheless, these studies did not address, calculate and compare countertrend scores produced by the use of the Stimulation Test as the first chart, second chart or no use of a Stimulation Test. Furthermore, the logic of its presentation as the first chart in acquiring a *known deception exemplar* to prevent its application to the control questions which would include the first relevant chart was not considered in aforementioned studies.

The lack of uniformity in the research construct and analog model of the various studies conducted on the Stimulation Test have not surprisingly produced varied results. Ellson, Davis, Saltzman and burke (1952) reported that examinees whose deception was detected and who were informed of this, were actually more difficult to correctly evaluate on subsequent tests, where-

as Gustafson and Orne (1963) found a tendency, although not statistically significant, for motivated subjects to be more difficult to accurately diagnose in later tests. Those examinees who had not been given any feedback or who had been told that their deception had been discovered, demonstrated no change in detectability. In a follow-up study, Gustafson and Orne (1965) indicated that "successful detection maximizes subsequent detection." Another study conducted by Barland and Raskin (1972) reflected limited success in establishing the validity of the Stimulation Test, stating "The manipulation of feedback on the card test failed to produce a reliable effect regarding detection of guilt or innocence." A study on the "Effect of the Location of the Numbers Test on Examiner Decision Rates in Criminal Psychophysiological Detection of Deception Tests" by Widup and Barland (1996) revealed that the location of the numbers test had no apparent practical effect on the distribution of polygraphists' decisions, but cautioned that the lack of ground truth and experimental control in real-life cases makes it difficult to draw firm conclusions. (See also Elaad & Kleiner, 1986). A study by Louis Senese (1978) involving thirty polygraph records from actual investigative cases which were equally divided with fifteen confirmed deceptive subjects and fifteen confirmed truthful subjects all of whom had been administered the Reid Stimulation Test as the second chart following the first relevant test, were reviewed by seven staff polygraphists from John E. Reid and Associates. None of the thirty cases were administered the Stimulation Test as the first chart before any of the relevant tests. The polygraphists were given the first relevant chart from each of the thirty cases for their analysis and conclusion. Subsequently, these same polygraphists were given the second relevant chart of the thirty cases administered after the conduct of the Stimulation test for their analysis and conclusion. The polygraphists were not informed on the accuracy of their first chart interpretation nor were they informed of the administration of a Stimulation Test. The results revealed that the accuracy in correctly detecting deceptive subjects and identifying truthful subjects in the first chart was 55.7 percent. However, after the Stimulation Test, the accuracy in the third chart (Second Relevant Chart) rose to 71.4 percent, increasing the level of accuracy by 28.12 percent. Incorrect judgments of identifying truthful subjects as deceptive, or deceptive subjects as truthful was 13.3 percent in the first chart evaluation. Incorrect judgment of truthful subjects as deceptive and deceptive subjects as truthful in the third chart evaluation decreased to 9 percent, reducing errors by 32.3 percent. The inconclusive rate, which is the percentage of cases in which a polygraphist could not evaluate a subject as being truthful or deceptive due to erratic or inconsistent responses, was 20.5 percent on the first chart evaluation. Results on the third chart evaluation

after the card test showed a reduction to 14.3 percent for the inconclusive rate, reflecting a 30.2 percent decrease in inconclusive results. Senese also measured subject unresponsiveness, the lack of significant emotional disturbances on the relevant, irrelevant or control questions. On the first chart 10.5 percent of the polygraphists' opinions were that the subjects were unresponsive. Results of unresponsiveness on the third chart evaluation decreased to 5.13 percent, yielding a 49.5 percent reduction in unresponsive results. While Senese's study reveals and confirms the effectiveness of the Stimulation Test administered as the second chart after the first relevant test chart, it offers no comparison with the Stimulation Test administered as the first chart before any of the relevant tests.

A field research study (Matte, Reuss 1989) involving 122 confirmed actual criminal cases investigated the effect of the Stimulation Test on the relevant chart that follows the Stimulation Test compared to the first relevant chart, and further investigated the effect of the Stimulation Test when administered as the first chart before the administration of any of the relevant test charts. In addition, the countertrend scores (scores that are inconsistent with ground truth) of subjects who were not administered a Stimulation Test were also considered and reported. In the aforesaid study, the Quadri-Track Zone Comparison Technique was used. Each chart has nine separate spots that are scored, three in the pneumograph tracing, three in the electrodermal tracing, and three in the cardiograph tracing. A minimum of two charts are required to reach a conclusion and as many as four charts are collected. Therefore two charts offer 18 spots, three charts offer 27 spots and four charts offer 36 spots for scoring. It is therefore not unusual for one or more spots to produce a score that does not follow the general trend consistent with ground truth, and these renegade scores are usually not strong enough to weaken the total tally of the general trend scores normally consistent with ground truth, into an inconclusive or false positive/negative conclusion. It is imperative however that countertrend scores be kept to a minimum.

In examining the countertrend scores, scores that do not follow the true trend as later established by ground truth, it was found that in the Innocent cases, 20 subject were administered the Stimulation Test after the conduct of the first relevant chart, experiencing a total countertrend score of -124 which averages at -6.2 per subject, whereas the 6 subjects who were administered the Stimulation Test as the first chart before the conduct of the first relevant chart experienced a total countertrend score of -27, an average of -4.5 per subject. The 32 subjects who were not administered a Stimulation Test nev-

ertheless experienced a countertrend score of -142 averaging -4.4 per subject. For the Guilty (as later verified) subjects, 40 subjects were administered the Stimulation Test after the first relevant chart for a total countertrend score of +110 averaging +3.0 per subject versus 20 Guilty subjects who were administered the Stimulation Test as the first chart with a total countertrend score of +39 averaging +2.0 per Guilty subject, while 4 Guilty subjects who were not administered a Stimulation Test had a total countertrend score of +4 averaging +1 per subject. See Table 1A for innocent cases and Table 1B for guilty cases regarding correlation to countertrend scores.²

When the Stimulation Test is given before chart one, the Innocent cases show a negative correlation (-.434) between the changes (between chart one and chart two) and the countertrend indicating the influence was positive and not related to a stimulation that produces a countertrend. The correlation of .1 for chart one values and the countertrend is quite low, also supporting this point. (See Table 1, A.1).

When the Stimulation Test is given before chart two, the higher positive correlation (.441) between the changes and the countertrend scores indicates that in the Innocent cases the Stimulation Test causes a significant influence counter to the final scores and counterproductive to the use of the polygraph. This supports the recommendation that the Stimulation Test is better given before the first chart rather than before chart two. (See Table 1, A.2).

For the Guilty subjects the changes have a negative correlation (-.002) to the countertrend when the Stimulation Test is given before chart one and a slight positive correlation (.108) when given before chart two. This indicates that the Stimulation Test is more effective if given before chart one and slightly counterproductive when given before chart two. (See Table 1, B.1.2).

The Guilty cases show significantly lower overall countertrend scores ($t(120) = 10.39, p < .001$) but nevertheless showed the same trend of +1 for Guilty examinees who were not administered a Stimulation Test, +2 for those Guilty examinees who were administered a Stimulation Test as the first chart, and

² An analogy can be made of the fact that when a significant change in a test question is made in between charts during the collection of the physiological data, at least two polygraph charts must be collected that include that change in order to make a decision of truth or deception, inasmuch as the chart(s) preceding that question change are different in content and thus must be treated as a separate test or excluded from the decision making process with justifiable explanation.

+3 for those Guilty examinees who were administered a Stimulation Test as the second chart. There was no statistical difference in countertrend scores between those Innocent examinees who were not administered a Stimulation Test and those Innocent examinees that were administered a Stimulation Test as the first chart (-4.4 vs. -4.5 respectively), $t(36) = -0.24$, $p = .812$. However, there was a statistical difference at the 10% level between Innocent examinees that were administered the Stimulation Test after the first relevant chart (-6.2) and those Innocent examinees that were not administered a Stimulation test (-4.4), $t(50) = -1.71$, $p = .093$. There were no significant differences between Innocent examinees administered the Stimulation test as the first chart and Innocent examinees who were administered as the second chart, ($t(24) = 0.70$, $p = .490$). However, we must take into heavy consideration the rather small number of Innocent cases (6) in which the Stimulation Test was administered as the first chart, versus 20 cases involving second chart Stimulation Tests in evaluating the aforementioned data. Further research in this area is recommended.

For the guilty, it would thus appear that the administration of the Stimulation Test as the first chart causes no statistically significant increase ($t(22) = -0.11$, $p = .916$) in countertrend scores compared to having no Stimulation test. Administration as the second chart also causes no increase in countertrend scores ($t(42) = 1.03$, $p = .311$) compared to having no Stimulation test. But there was a significant difference between guilty subjects who were administered the Stimulation Test after the first relevant chart and as the first chart on their countertrend scores, $t(58) = -2.16$, $p = .035$.

Nonetheless, the logic of administering the Stimulation Test as the first test or chart (rather than as the second chart) does not escape the astute examinee, especially the Innocent who may wonder why a test purportedly designed to determine the examinee's suitability for the test is being administered after the first relevant chart has already been conducted. The ensuing potential arousal of the examinee's *fear of error* regarding the first test or chart can only be felt by the Innocent examinee; inasmuch as the Guilty examinee hopes that an error will be made on his test. But this "fear of error" by the Innocent can result in a false positive or inconclusive finding. Furthermore, the administration of the Stimulation Test as the first test affects all relevant tests equally, whereas the administration of the Stimulation Test as the second chart has a psychological effect on those relevant test charts that follow it that is absent in the first relevant test chart preceding the Stimulation Test. In the latter instance, it could be argued that the scores from the first rel-

evant test chart cannot be added to the scores acquired from those relevant test charts collected after the administration of the Stimulation Test because of the psychological impact that the Stimulation Test had on the examinee during the relevant test charts following the Stimulation Test, which was absent during the administration of the first relevant test chart that preceded the Stimulation Test. Finally, the administration of the Stimulation Test as the first test provides the polygraphist with a Control Test of the examinee's capability and manner of response, and an opportunity to make necessary adjustments prior to the conduct of the relevant tests.

Table 1. Stimulation Test – Influence on the Charts

A. INNOCENT CASES			
1. Given Before Chart 1 N = 6			
	Change 1 to 2	Chart 1	Countertrend
Sum	-1	7	-27
Mean	-.17	1.17	-4.50
SD	6.55	5.46	3.83
Correlation to Countertrend	-.434	.100	
2. Given Before Chart 2 N = 20			
	Change 1 to 2	Countertrend	
Sum	-53	-125	
Mean	2.65	-6.25	
SD	6.08	5.69	
Correlation to Countertrend	.441		
B. GUILTY CASES			
1. Given Before Chart 1 N = 20			
	Change 1 to 2	Chart 1	Countertrend
Sum	-37	-126	17
Mean	-1.85	-6.30	.85
SD	3.76	2.49	2.70
Correlation to Countertrend	-.003	-.179	
2. Given Before Chart 2 N = 40			
	Change 1 to 2	Countertrend	
Sum	-33	103	
Mean	-.82	2.58	
SD	5.73	3.01	
Correlation to Countertrend	.108		

Table 2

A. INNOCENT CASES								
Given Before Chart 1 N = 6		Given Before Chart 2 N = 20		Not Given N = 32				
<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>	<i>t</i>	<i>df</i>	<i>p</i>
-4.50	3.83	-6.25	5.69	-	-	0.70	24	.490
-4.50	3.83	-	-	-4.16	3.12	-0.24	36	.812
-	-	-6.25	5.69	-4.16	3.12	-1.71	50	.093
B. GUILTY CASES								
Given Before Chart 1 N = 20		Given Before Chart 2 N = 40		Not Given N = 4				
<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>	<i>t</i>	<i>df</i>	<i>p</i>
0.85	2.70	2.58	3.01	-	-	-2.16	58	.035
0.85	2.70	-	-	1.00	1.41	-0.11	22	.916
-	-	2.58	3.01	1.00	1.41	1.03	42	.311

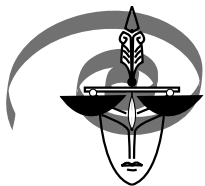
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Report



Report from the 5th Interdepartmental Polygrapher Seminar “Course, role, and significance of the pre-examination interview in psychophysiological polygraph examinations”

Held on 24th and 25th September 2012 at Rynia near Warsaw was the 5th Interdepartmental Polygrapher Seminar on the subject of the Course, role, and significance of the pre-examination interview in psychophysiological polygraph examinations, organised by the Military Police High Command, together with the Association of Polish Polygraphers.

Participants of the seminar included members of the Police, Border Guard, Military Police, Military Counterintelligence Services, Military Intelligence Services, Internal Security Agency, Military Institute of Aerospace Medicine, Ministry of Finance, Military Academy of Technology, and representatives of academia, including the Andrzej Frycz Modrzewski Krakow University College.

The main goal of the symposium was the exchange of experience and expansion of knowledge concerning the practices and binding standards in polygraph research, with a special focus on the significance of the pre-test interview.

The conference was opened by the Commander of Military Police, Major General Dr Mirosław Rozmus. The sessions were chaired by Professor Jan Widacki, Professor Ryszard Jaworski, Dr Łucjan Wiśniewski, and Lieutenant Colonel Piotr Sukiennik.

The first paper on Polygraph examinations – contemporary Polish practice was delivered by Professor Jan Widacki, who pooled together the numbers of polygraph examinations performed for investigation purposes by the Police, Military Police, and Border Guard with the numbers of criminal cases, in which he clearly proved that on average one polygraph examination is conducted in nearly 7000 investigations. The reasons for such a status quo are believed to be found both in the fact that the people running the investigations do not know how to use a polygraph, and in the low quality of the examinations performed.

In the following paper on the European roots of polygraph examinations, Professor Jan Widacki proved that, although the United States is considered to be the “home of the polygraph”, the majority of the basic research which the polygraph examination is based on was performed in the late 19th and early 20th centuries in Europe (the studies of Mosso, Ferri, Tarkhanoff, Cybulski, Benussi, and Lombroso). It was most probably Lombroso who was the first person ever to use instrumental lie detection (with the use of the hydroplethysmograph) in a criminal investigation, as he used his device more than two decades before Larson in the United States.

The following paper on the Selection of control questions in homicide cases by Professor Ryszard Jaworski was based on practical experience in the Reid technique that the professor uses, even though it is slightly antiquated today.

His paper was followed by Lie detection with non-instrumental methods by teachers, psychologists, and police officers – conclusions for the method of conducting the pre-examination interview presented by Martyna Huszcza and Małgorzata Wrońska. In their paper, they discussed the results of examinations conducted by three groups of respondents: police officers, psychologists, and teachers. The authors suggested that the assessment of the verbal and non-verbal symptoms of deception accompanying the statements of the examinee can be – if due caution is preserved – used in polygraphs examinations, especially during the pre-test interview.

In the following paper on the Methodological problems of polygraph examinations, Anna Ibek analysed the space of polygraph examinations covering investigation from the methodological perspective.

The paper delivered by Tomasz Rewerski on the Psychological circumstances of people subjected to polygraph examinations in the process of recruitment

for the Border Guard characterised, among others, the attitudes of people subjected to examinations, depending on personality types.

In his paper on the Specific characteristics of polygraph examination of foreigners – running tests with the participation of an interpreter, Jerzy Błachta shared the new experience he gained during the mission to Afghanistan.

Later, together with Piotr Kuźdub, he presented a paper on Non-standard question sets in polygraph tests: analysis of personal experience. Like the former paper, this too was based on case studies from the speakers' own practice.

Dr Marian Macander from the Military Institute of Aerospace Medicine presented a paper on The concept of using results of polygraph examinations in a mobile unit for securing plane crashes and accidents, in which he discussed the idea of using the results of polygraph examinations as part of the work of the committees investigating the reasons for plane crashes.

On the second day of the symposium, Ewelina Rubaj-Wiater presented a paper on The real-time system of quality control: the use of a quality control system in polygraph training, in which she described the control system of polygraph examinations performed in real time by another expert, sitting in a separate room and evaluating the course of the examination at the time it is conducted.

Dr Krzysztof Wróblewski delivered a medicine-oriented paper on The continuation of research on memory disorders in people with advanced somatic conditions.

It was followed by another paper based on practical experience: Purposeful distortion of the psychophysiological examination, with methods for the detection and counteracting of such distortions, presented by Maciej Jaroszek.

Tomasz Garsztka delivered a paper on Presentation of linguistic analysis: a case study, which was an attempt at analysing lie detection based on discourse linguistic analysis. Linguistic analysis was applied to the discourse of a suspect in a media-hyped case of a mother suspected of killing her child. The paper brought about a highly critical reaction, with charges against the author including the lack of comparative material, and the absence of justification for his conclusions.

In his paper on The questions of efficiency and admissibility of new detection tests in polygraph examination, Marcin Gołaszewski presented a report by the American Polygraph Association (Committee Report on Validated Techniques) defining the standards of examinations binding in the United States from 2013. The authors suggested the need to introduce similar standardisation of polygraph examinations in Poland.

The symposium was closed with a conclusion by its moderators – Professor Jan Widacki and Professor Ryszard Jaworski, who wrapped up the operation of the Association of Polish Polygraphers in 2011–2012, and discussed plans concerning further operations. Among the most important tasks, they mentioned the delivery of common, unified standards of polygraph examinations in Poland and joint work on the improvement of the distorted image of polygraph examinations in the media caused by the lack of thorough knowledge of polygraph examinations, both in public opinion, and in investigating bodies and courts. The conference proved that the level of polygraph examinations in Poland – although somewhat denigrated by investigating bodies and courts – is constantly rising. Moreover, the number of unique experiences in the field (e.g. concerning polygraph examinations conducted with participation of an interpreter) is growing as well.

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Book reviews



*Michael R. Napier,
Behavior, Truth and Deception.
Applying Profiling and Analysis to the Interview Process,
CRC Press, Boca Raton 2010, pp. 374*

The book is a collective effort. Besides that of Michael R. Napier, it includes work by another eight experts, but the majority of the text was written by Napier, an FBI veteran with nearly 30 years of experience, including practical experience in the position of certified polygrapher.

The very title emphasises the validity of the work for today: after all, criminal profiling and criminal information analysis are among the most rapidly developing fields of forensic science. However, the author(s) do not delve into theories but rather aim to bring the practical aspects of their impressive professional achievements closer. Predominant here are a range of problems concerning sex crime and especially rape, but also paedophilia, stalking, and, more generally, homicide. Yet the main “heroes” of the book are the interview and, to a smaller degree, interrogation, as applied in reference to the categories of crime mentioned above.

The first chapters of the book focus on the discussion of the psychological and tactical questions related to interviewing techniques. The author begins by considering the arguments formulated by people critical of the techniques used by police officers. The methods are attacked for a lack of scientific justification, as yet unestablished validity and reliability, hyper-interpretation

of suspects' behaviour, poor preparation by the police force, excessive oppressiveness leading to false admissions of guilt, and for a number of other reasons. The main line of defence of the author is putting the emphasis on the need to obey ethical standards of the actions one embarks on: "What ethics apply to law enforcement interviewing? The answer is that, at a minimum, officers must know and respect the law and be dedicated to finding the guilty as well as the innocent" (p. 20).

The chapter in which the author presents the "five stars for success" during the interview is highly interesting. The stars include (1) personality traits of the person running the interview, (2) detailed information concerning the investigated crime, (3) ample knowledge concerning the interviewee, (4) practical skills in the art of conducting procedures, and (5) appropriate arrangements of the interview, with the order of their presentation being a reflection on the level of their importance. Thus, what plays a leading role is the talent of the officer, which includes a number of traits; the skill of adapting interview and interrogation techniques to their personality, assuming the position of a truth seeker, patience, perseverance, persistent implementation of every phase of action, preparing the plan of action, highly developed listening skills, flexibility, ability to adjust their own convictions and language to the characteristics of each person interviewed (p. 42) being among them. These questions are expanded in the successive chapters (Indirect Personality Assessment, Interviewer's Verbal Strategies, Nonverbal Communication, Interview and Interrogation Techniques, and others).

The most interesting parts of the book include the chapter on Cultural Considerations for Interviewing, written by B. L. McManus. The author places a clear emphasis on the necessity of accounting for cultural aspects while conducting the interview. The perspective that he considers covers mostly interviews with people hailing from the Middle East, and provides a contrast with suggestions concerning people with Latin American and also Asian roots. Religious references are also considered, with the author perceiving their frequently central role in the establishment and shaping of interpersonal contacts. The basic rule to be applied is as follows: "As an investigator, intelligence collector, or business analyst working in an international setting, you must understand the cultures of the world. Whether dealing with the history and culture of Latin America, the Oriental concept of the self – based on Buddhism, Confucianism, and Feudalism, or the study of Islam, success truly depends on taking the time to study." (p. 262). The matter, however, is never so simple, as "[t]here is no fool-proof recipe; there is always the possibility of unpredictable behaviour." (p. 263).

The issue of polygraphs examinations turns up in a number of places, yet as a rule in a single aspect, namely, in considerations concerning the reaction of a person during the interview to the suggestion of undergoing an examination. Such a proposal is an element of a structured interview and comes as a question: "Would you be willing to take a polygraph exam on what you told me?", Although in a few places, the author provides a modified version of the phrase, namely, "If my supervisor wants you to take a polygraph, are you willing?". Such a shift of the suggestion to undergo a polygraph examination onto the mysterious supervisor is interesting, and builds a certain distance between the interviewer and interviewee on the one hand, and the examination on the other, and it is justified to say that it is aimed at maintaining the image of the "good cop" by the officer. The author recommends asking such questions also in situations when local law forbids the use of polygraphs, and then states that generally both people who tell the truth and perpetrators of crimes agree to the proposal (an observation that remains coherent with the experience of every polygrapher with practical experience in criminal cases). This is why the author believes the following question to be of diagnostic quality, namely "What will the results be when you are asked questions about you committing the crime?" (p. 86). If at that time the interlocutors suggests withdrawing his or her consent, and provides answers ranging from "I have sinus problems and take three Tylenol tabs a day", via "Don't you know those aren't admissible?" and "I will need to check with my attorney", to "I don't really believe in them" (p. 86), this proves the need to keep the interviewee among the suspects. The author suggests using such a strategy, that is asking the two questions quoted above in succession, in every interview conducted (p. 295). Compared to the well-known, earlier constructions of the Behavioural Analysis Interview, this is an original and unorthodox¹ solution.

One cannot, however, disregard the warnings presented by D.E. Zulawski and D.E. Wicklander in reference to the proposal of conducting the examination, and even the declaration about the readiness of the interviewee to undergo polygraphs examinations. If the suspect knows or guesses that the examination cannot take place immediately, just after the discussion concerning his potential consent, then approving the proposal verbally, he or she has little to lose, knowing that in future such consent may always be withdrawn.

¹ Such questions are missing e.g. from the approaches proposed by F.E. Inbau, J.E. Reid, J.P. Buckley, B.C. Jayne (2004), *Criminal Interrogation and Confessions*, Jones & Barlett Learning, Burlington; D.E. Zulawski, D.E. Wicklander, *Practical Aspects of Interview and Interrogation*, CRC Press, Boca Raton.

Primarily, however, a guilty interviewee may come to believe that the case against him or her is based on fairly poor evidence, and that there are doubts concerning his or her guilt, as otherwise, no one would suggest a polygraph examination.²

Let us remain for another while in the realm of information analysis, as presented in the book in question. M.R. Napier makes no reference to the ample literature concerning contemporary criminal analysis, nor does he mention intelligence-led policing, nor discuss any advanced analytical techniques. Instead, he describes an analytical methodology that is feasible and recommended for the officer handling the case, in a way for the officer's own use. It is based on a relatively simple pencil-and-paper exercise composed of three stages. The first is based on the itemisation of the behaviours of the perpetrator of the crime, while committing it. The second is the attribution of explanations (Why was it done?) to these behaviours. Finally, the third covers the conclusions recognised on the grounds of the first two types of data, e.g.: smashing down the door with a kick – the impulsive nature of the perpetrator – the perpetrator is sloppy, is not prepared, and with poor self-control. The author recommends the use of the achievements of forensic sciences, victimology, the classification of an organised or disorganised offender, and other theories. In fact, it would be difficult not to agree with the author that the making of such a list is useful for the officer in charge of the investigation.

Wrapping up, the book covers many their important questions related to the running of criminal investigations. Although, as has been mentioned, it is devoted primarily to the practical aspects of action, it will certainly be an important volume for every reader interested in forensic sciences.

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² D.E. Zulawski, D.E. Wicklander, op. cit., p. 451.

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For example (in references):

Reid J., Inbau F. (1966), *Truth and Deception: the Polygraph ("Lie-detector") Techniques*, Williams & Wilkins, Baltimore.

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

and (Reid, Inbau, 1966), (Abrams, 1973) inside text.

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