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## Evaluating Previously Conducted Polygraph Examinations

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It has become increasingly common for both the Prosecution and Defense to have specific issue, investigatory polygraph examinations reviewed by their own expert. The following recommendations are intended to ensure a competent and objective review for these situations. More detailed procedures are recommended for reviews of examinations conducted during polygraph training, formal evidentiary proceedings or quality control exercises where compliance with specific procedures is mandated. The suggested procedures are limited to consideration of the overall accuracy of the examination being reviewed. They are not meant to represent a finite critique of technical details with suggestions of alternative practices that may or may not enhance accuracy.

There are different phases of every specific issue polygraph examination that directly effect opinion accuracy and should therefore always be at least considered for review:

1. Case facts upon which issue focus and question design are based;
2. Subject variables, many of which are explored in the pre-test interview;
3. Examination procedures and practices including technique used; and
4. Examiner competency and bias issues.

### Case Facts

It is not necessary to have access to or review all the reports, transcripts or forensic test results upon which reviewed examination's focus and question design are based since significant problems here will be apparent on the pre-test video, test question forms and examiner report. If the examiner is rendering an opinion to something not discussed in the pre-test and specifically targeted by the test questions, there is a problem. In those rare cases where subsequent investigation discovers a serious error in case facts directly effecting test focus and question formulation, the test results might be set aside but the examiner should not be held responsible if the examination was constructed and conducted in good faith. Therefore, in order to evaluate this aspect, the reviewer should require copies of:

1. The examination question form listing all questions asked during the chart recordings;
2. The audio/visual recording of the pre-test interview including examination question review and discussion; and
3. The examiner's written report including a description of examination focus, relevant pre-test statements and Relevant Questions to which opinions of truth or deception are rendered.

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All the reviewer needs to ascertain from these materials is the basis for the examination focus and subsequent question design, particularly if these appear to target less serious aspects of the allegation. For example, in a case in which someone was shot, there would have to be some explanation as to why the Relevant Questions focused only on planning or knowledge and not “Did you shoot...” That might be the case if the subject admits in the pre-test that his hand was on the gun at the time the victim was shot (responsibility for the act) but claims it was an accident because someone bumped him and the gun went off. Since all specific issue examinations should focus on a perceived hierarchy of concern (Do “it”..., Help/Plan to do “it”..., Know who did “it”..., etc.), the reviewer should easily be able to determine if the Relevant Questions focus on the same, specific issue even when they address different aspects of that issue. While, in theory, single aspect, specific issue examinations are more desirable than multiple aspect, specific issue examinations, the vast majority of “high level”, peer review, real case or field validity studies as defined by the original federal Office to Technology Assessment (OTA, 1983) and subsequent National Academy of Science (NAS, 2003) involved multiple aspect, specific issue examinations using such Comparison Question Technique variations as the Reid, Backster SKY, MGQT, etc.). Likewise, if the specific issue involves multiple events but the same issue (several drug sales on different dates to the same undercover agent by the same suspect) or different acts but the same issue (a variety of different sexual acts with the same victim by the same suspect), most would still consider these to be specific issue polygraph examinations as opposed to the different, unrelated issues found in screening examinations. Therefore if the reviewer can determine from the previously mentioned materials that the examination and Relevant Question focus conforms to any of these variations of specific issue focus, the test being reviewed should be found to be adequate with regard to this aspect of examination accuracy.

### Subject Variables

While the clinical aspects of the examination cannot be quantified and analyzed in the mechanical, technician-like procedures sometimes used for chart interpretation, anything that might affect the subject’s physical, psychological and emotional suitability for testing can influence the accuracy of the examination. In short, no matter how valid and reliable the technique nor how objective the scoring procedures, factors effecting the subject’s psychophysiology directly affect the recordings being evaluated. Fortunately, most of these variables affect the recording in ways that result in inconclusive, not erroneous, opinions. When the examination is determined to be inconclusive either because of a lack of responsiveness or the presence of artifacts precluding an interpretation, the causes (drugs, lack of comprehension, coughing, etc.) almost always effect Relevant and Comparison Questions equally with the exception of situations where the subject intentionally generates the artifact to only one type of question. Clearly, some of these examples could include intentional acts on the part of the subject, such as countermeasures to prevent accurate outcomes or, the reverse, subjects who try to “help” the test in order to avoid false positive outcomes. While the examiner’s pre-test notes and video should clearly indicate if the subject was asked about her or his present state of physical and emotional health (amount of sleep, medications, counseling, discomfort, etc.), only the video does justice to determinations of comprehension. Examinations conducted with subjects who do not understand the procedures,

examination purpose, consequences or test questions generate charts upon which opinions of truth and deception cannot be considered valid or reliable since the cause of any responses would not be based on any accepted theory supported by research (Barland, 2004). Whether because of youth, culture, intelligence, language, hearing, psychiatric or other variable, there simply are some subjects who should not be given polygraph examinations or, if they had been, their results should be set aside, no matter how pressing the demand for an opinion. Reviewers should key to both the verbal and non-verbal cues that many people produce when they don't understand what they are being told or the question being asked: confused, puzzled looks, answers that clearly indicate misunderstandings, asking the examiner to repeat simple questions, etc. Hopefully, there should also be indications on the recording that the examiner recognized that the subject was struggling and specifically asked if he understood the instruction, question or whatever elicited the "don't understand" response. In such cases, there should be clear evidence that the cause of the problem was resolved before the examination was conducted, e.g. allowing the subject to use the bathroom, providing them with an interpreter, waiting until they sobered up, etc.

Another simple method to assess the subject's suitability for testing is to incorporate a Behavioral Analysis Interview (Inbau, Reid, Buckley & Jayne, 2013) into the pre-test interview. Since some B.A.I. questions require memory or a calculation and others ask for ethical opinions, both forms of cognitive processing establish a record of the subject's ability to understand not only the examination purpose, procedure and questions but provides an excellent opportunity to explore possible comparison question and concealed information topics (Peters, 2012), the basis for all validated polygraph techniques. Finally, the B.A.I. can be used as a stand alone comparative to the examination's accuracy. Clinical Analysis, formerly known as Global Evaluation is a three pronged approach to evaluating case decision accuracy (Slowik, 1982; Slowik, 2003). If the Case Fact Analysis, Clinical Analysis based on verbal/non-verbal behavior and polygraph opinion all agree as to the direction of the opinion – truth or deception – then the testing examiner's polygraph opinion is more likely to be correct. While the three approaches are certainly interrelated by the subject's actual innocence or guilt, they are not redundant. This same phenomenon may also explain why some polygraph subjects respond simultaneously in all three physiological parameters and others don't. As long as they all point in the same direction, even if the subject is unresponsive to one – even two of the parameters – the opinion is considered valid if the response level is great enough. When the parameters contradict each other however, examiners and reviewers should rightly be concerned.

While the testing examiner's notes may be useful particularly with regard to what may have occurred with the subject immediately prior to the polygraph examination, the only objective way to determine if the subject was suitable for testing is by reviewing a recording of both the audio and visual responses of the subject throughout the entire examination including the pre-test and chart recording sessions. With the exception of examinations conducted for national security purposes, taping should be the new normal and not required only for evidentiary and PCSOT examinations (APA By-Laws, 2012).

### Examination Procedures and Practices

With regard to specific issue examinations, there are essentially only two techniques in common use: Concealed Information/Peak of Tension type tests and numerous variations of the Comparison (formerly Control) Question Technique that John Reid created to overcome the inherent false positive problems with the Irrelevant/Relevant Technique (Hedges, Deitchman & Samra, 2013). Some may argue that since the Directed Lie Comparison Questions (Menges, 2004) are more akin to the Known Number Test, Comparison Question tests using Directed Lies should be considered a separate and distinct technique. At present, since this procedure is more commonly found in screening, not specific issue, examinations, it is not included in this discussion as a separate technique.

The procedures used to evaluate Concealed Information and Peak type tests are simple and straight forward. While there are variations involving placement of the key item, number of items and number of tests, few examiners have trouble recognizing when significant responses occur consistently at a unique location. There is far less consensus with regard to the numerous Probable Lie Comparison Question techniques yet, when reduced to the essence of Reid's game changing insight, they all work and work well. This in turn has always allowed examiners trained in different Comparison Question procedures to identify Relevant and Comparison Questions no matter what Comparison Question technique variation was used and make the appropriate comparisons leading to a correct conclusion. Technical differences regarding Inclusive/Exclusive phrasing, the use of Symptomatic Questions in the Backster technique, the use of the Reid Silent Answer test and even the number and order of Relevant and Comparison Questions are insignificant variations when compared to question formulation, question development and essential Relevant to Comparison Questions evaluation. In the same vein, part of Reid's lasting legacy was his willingness to change and evolve his Comparison Technique, a philosophy later test developers seem to be following to this day. Thus, while Reid's procedures in 1977 (Inbau, Reid, 1977) cited as many as five Relevant Questions on specific issues examinations, today Reid examiners almost never use more than three. Likewise, while the original Utah Technique described the use of three Relevant Questions, Dr. Raskin's recent testimony (State of Alaska, 2012) indicates the employment of four Relevant Questions for at least some "Utah" specific issue examinations. Reviewers who maintain that a three RQ Reid, a four RQ Utah or a Backster test without the Symptomatic Question lack supporting validation studies should reevaluate their understanding of basic Comparison Question theory.

Examiners continue to disagree as to which physiological parameter is "best" and how much constitutes a +/- 1, 2 or 3 in a seven point numerical scoring scale yet the simple comparison of just the two fundamental question types is so robust that all these differences have little or no effect in overall decision accuracy. This reality can be easily demonstrated when examiners, trained in many different techniques, participate in standardized competency tests such as that required to qualify for the Marin Protocol (Marin, 2000; Krapohl & Cushman, 2006).

Therefore, in order to evaluate this aspect of test accuracy, the reviewer will need to see, from the pre-test recording, how the Relevant and Comparison Questions were reviewed and discussed, the actual wording of these questions as they were presented during the recording of the charts, the wording of the Relevant Questions as they appear in the reported opinion, the specific Comparison Question variation used (if it isn't apparent or indicated in the report) and, of course, a copy of the polygraph charts. Because of compatibility problems with different algorithms, different versions and different computer polygraph manufacturers, the standard chart for review should be printed, unedited and with all question start and answer locations clearly marked with a identifying number that exactly corresponds to the copy of the examiner's question form. In addition, the total number of tests, test type (stimulation, Mixed Question, Silent Answer, etc.) and the order of tests should match the recording. This, of course, does not preclude the review of examinations using materials transmitted electronically if that is what the reviewer prefers, provided all the aforementioned materials (video, notes, etc.) are sent. Rather, only that the norm for review should be a printed, unedited copy of the charts. Finally, since scoring methods are in no way part of the procedures or technique that generated the charts, all the reviewer needs is a copy of the examiner's manual scoring indicating which RQ's were compared to which CQ's. The reviewer, however, is not bound to make the same paired comparisons or even use the same scales, weights or decision rules but should be able to articulate a basis for selecting different comparison pairs and/or levels of significance.

#### Examiner Competency and Bias

In 1963, John Reid was instrumental in having the first polygraph licensing law established in the United States (ILCS 4301, 1963). Long before the American Polygraph Association got around to creating polygraph school certification criteria, polygraph credentials in Illinois have been based on competency determined by an independent government agency, an idea others have since espoused but failed to put into practice. Prior to 2005 when the opportunity to qualify for the Marin Protocol became available at no cost to all examiners, very few examiners even had the opportunity to participate in any kind of independent, competency based internship training or testing, let alone competency based licensing. Reid's stated intention for having a government agency, rather than polygraph school, independently certify examiner competency was to move polygraph beyond the realm of the technician into the province of the professional, a notion subsequently echoed repeatedly by others (Cushman, 2012; Wygant, 2012). In 2009 the National Academy of Science (NAS, 2009) issued its report "Strengthening Forensic Science" and Congress has recently passed legislation to fund the Academy's recommendations. Specifically, the recommendations focus primarily on the issues of accuracy and competency. With regard to polygraph, both Reid and the NAS appear to recognize the human aspects of polygraph and their subsequent effects on errors and error rates. In short, chart interpretation is probably far less important with regard to overall decision accuracy than the test construction and subject suitability variables discussed previously. Therefore, the reviewer should consider if and how the examiner who conducted the examination under review was trained, interned, certified and/or licensed and make sure, from the examiner's notes and the video recordings, proper question review and subject suitability assessments were made throughout the examination.

Clearly, examiners who participated in captive internships where they conduct real life examinations under direct supervision and immediate review of an instructor licensed by a government agency, independent of the polygraph school, experience a more competency based form of training than examiners who send back materials for later review.

Far more controversial are NAS's recommendations with regard to bias. It is their stated position that all investigative forensics should be removed from the auspices of law enforcement, contending that there are such serious tendencies towards preordained outcomes favoring the prosecution that the entire process is biased and therefore invalid. This is not a new argument. For a comprehensive review of this argument as it applies to polygraph, one has only to review the various articles regarding the "Friendly" and "Unfriendly" examiner (Faigman, 1997). While it would be nice to only use examiners that provide their services for both the Defense and the Prosecution, the reality is that few examiners can establish their objectivity by demonstrating opposing sources of income. While groups like the Innocence Project and PBS producer Ken Burns would have you believe that NAS's bias concerns only apply to wrongful convictions, polygraph practitioners are very much aware that the door swings both ways. Therefore, while the reviewer is almost always aware of the testing examiner's employment status, and while the appearance of objectivity is always desirable, who requested or paid for the test should be irrelevant to the examination review.

Polygraph based on Reid's Comparison Question technique is both a robust and evolving science that accommodates many variations and differences of opinion. When evaluating another examiner's test it is disingenuous and divisive to focus on petty, technical differences between procedures the testing examiner and the reviewer each prefer. Polygraph Association By-Laws and employer's policies should not be the basis of a review but rather, the collective points of agreement common to all practicing examiners. In this fashion, all examiners can benefit from each other's research and adopt – and vary – procedures without having to validate each change as a "technique". It's no coincidence that the more recent polygraph validities cited by the NAS are nearly identical to the validities from the 1970's cited by the OTA – they all use variations of the original Comparison Question technique created in the 1940's.

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