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Book reviews

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A Field Study of the Backster Zone Comparison Technique's Either-Or Rule and Scoring System Versus Two Other Scoring Systems When Relevant Question Elicits Strong Response

Background

In March 1974, Cleve Backster authored an article published in *Polygraph* entitled "Anticlimax Dampening Concept" (Backster 1974). In his article, Backster states "The anticlimax dampening concept is formulated on the well-validated psychological principle that a person's fears, anxieties, and apprehensions are channeled toward the situation which holds greatest immediate threat to his self-preservation or general well-being. A mother may sleep soundly as noisy freight trains pass her home yet quickly awaken at the slightest whim-

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per of her baby. This illustrates the ability within us to tune in that which may indicate trouble or danger by having our sense organs and attention set for a particular stimulus and oriented in a manner that will dampen any stimulus of lesser importance. The guilty suspect has his sense organs and attention set for that question which he feels will jeopardize his well-being." Backster continues that "By understanding anti-climax dampening effect we have many new avenues open to us for technique advancement." He concludes by stating that "we can carefully introduce certain questions or other stigma into a test structure which will be strong enough to be of concern to the innocent suspect, but will be strictly anticlimactic to the guilty suspect who is focused on the more intense relevant questions."

Backster theorized that by structuring a test which would offer both the Innocent and the Guilty examinee a narrow focal corridor comprising three exclusive control questions (Green Zone) and two neighboring relevant questions (Red Zone) dealing with the same act within the same issue, the responses to one Zone would ideally dampen potential responses to the other zone. Hence a Guilty examinee should respond strongly to both of the relevant questions, which should in turn dampen out any potential responses to the neighboring control questions due to the anti-climax dampening effect. It is important to note that the Backster Zone Comparison Technique is a true Single-Issue test in that both relevant questions deal with the same act within the same issue, whereas some other Zone Comparison Techniques refer to their technique as single-issue tests because their test questions deal with the same issue but not necessarily the same act, i.e. the inclusion of two separate sex acts allegedly perpetrated on the same victim during the same period, or the inclusion of an evidence-connecting question and/or a knowledge question. The reasoning given is that if the examinee is lying to one of the relevant questions he/she will most likely be lying to the other relevant question; however, inasmuch as they are separate acts, the test is not a true single-issue test as defined by Backster. In order to laterally score the charts, that is to combine the vertical scores attained from each relevant/control question pair, both relevant questions must deal with the same act, thus the same relevant questions worded differently, which provides not only internal reliability, but also a narrow focal corridor[1] for the Guilty examinee to focus his/her psychological set (Matte, Grove 2001). Conversely, the Innocent examinee's psychological set should

[1] Relevant questions are distinct, specific, narrow in scope and void of mental exercise, thus offering the examinee a clear choice in his/her answer to the relevant questions.

ideally be focused on the broader focal corridor[2] offered by the neighboring control (comparison) questions which are designed to be removed from the period encompassed by the relevant questions with the use of time bars that purposely render the control (comparison) questions structurally less intense than the relevant questions.

By positioning the stronger exclusive control question which deals with the period closest to the event being tested and the examinee's activities as an adult, immediately before the first quantified relevant question the Innocent examinee is given a chance to react strongly to this control question, and because his/her psychological set is focused onto that control question, it has the potential of dampening out concern about the neighboring relevant question that follows it. In fact, the Innocent examinee's psychological set should be focused squarely on the control questions, which should dampen out any concern for the neighboring relevant test questions, unless the Innocent examinee has a fear of error regarding the target issue.

However, the Guilty examinee should find the two relevant questions dealing with the same act an immediate and serious threat to his/her well being, far greater than his/her probable-lie to the three exclusive control questions which deal with potential issues that are significantly removed with time bars from the current period encompassing the offense.

It is in this context that we examine Backster's chart interpretation rule, which requires that when there is a strong (maximum) response on a relevant question it is compared with the exclusive control question that has the least or no response on either side of it, because that control question is functioning as designed. Should there be an equally strong (maximum) response to the exclusive control question that precedes the strong (maximum) response to the relevant question, that control question is viewed as defective.[3] That defective

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[2] Exclusive Control (Comparison) questions are broad in scope, which invites mental exercise, known to cause autonomic arousal. But it does not embrace the period covered by the relevant questions, thus being structurally less intense.

[3] Abrams (1997) stated in his study that "He (Backster), however, strongly rejects the term weaker control indicating that it is actually a defective control. His method is to score to the defective (weaker) control..." Abrams admitted to this author (1999) that his above statement was semantically incorrect, and acknowledged that Backster considers the control question that elicits the *strongest* reaction is in fact the *defective* control versus the control question that elicits little or no reaction to be the effective control when there is also a strong response to the neighboring relevant question. This misunderstanding of Backster's concept is shared by a multitude of polygraphists and researchers.

control question may have time bars that are too close to the relevant issue and embrace unknown serious crimes, i.e. serial rapist, murderer, robber, etc., or a deliberate countermeasure was employed on the control question(s) to cause an inconclusive or false negative.

Backster "Either-Or" Rule

To arrive at an interim spot analysis tracing determination of (+2) or (–2) there must be a significant and timely tracing reaction in either the red zone or the green zone being compared (Backster 1989, Matte 2007).

(a) If the red zone indicates a lack-of-reaction it should be compared with the neighboring green zone containing the larger timely reaction.
(b) If the red zone indicates a timely and significant reaction it should be compared with the neighboring green zone containing no reaction or the least reaction.

* * *

Sub-paragraph (b) of Backster's "Either-Or" Rule comprises the primary element studied in this field research.

The relevant questions deal with *known* acts that are specific in nature and composition. Therefore a strong (maximum) response to a relevant question, absent an artifact or non-addressed variable, can safely be interpreted as being a serious threat to the well-being of the examinee, and due to the psychological structure of the test, an inference of deception can be made to that relevant question. That there is an equally strong response to its neighboring exclusive control question does not alleviate the fact that there is an equally strong response to the relevant test question which embodies the reason for the examination. Thus a strong reaction to a relevant question cannot be ignored because there is an equally strong reaction to its neighboring control question. Furthermore, in the aforesaid situation, the strong reaction to the control question must be viewed as defective and remedied in accordance with Backster's Tri-Zone Reaction Combinations (Backster 1962, 1963, 1979). Hence, a relevant question that elicits a strong response is compared against the exclusive control question that expectedly elicits the least or no response.

However, Backster's rule articulated above has been criticized as being biased against the Innocent examinee (Raskin, 1986; Bell, Raskin, Honts, Kircher, 1999). Some techniques, such as the DoDPI Zone Comparison Technique, USACID Zone Comparison Technique, and USAF Zone Comparison Technique, compare the relevant question that elicits a strong response to the control question that elicits the greatest response. The Utah Zone Comparison Technique, which previously (Raskin 1979, Honts 1996) compared the relevant question(s) with the control question preceding it, now also compares the relevant question(s) against the neighboring control question that elicited the strongest response (Bell, Raskin, Honts, Kircher, 1999), but this change may be due to the fact that the control questions in the Utah ZCT are now directed-lies which are inherently weak (Matte 1998, 1999).

While a comparison of a strong response on a relevant question to the neighboring control question that manifests the least response appears to be selective, a comparison of a strong response on a relevant question to the neighboring control question that manifests the greatest response is equally selective. Hence a non-selective approach would require that each relevant question be compared with the neighboring control question preceding it, thus each control question would be paired with the relevant question immediately following it. Control questions usually precede the relevant questions to enable the structurally weaker control question to dampen potential responses to the relevant questions by the Innocent (as later verified) examinee. An example of this is the Matte Quadri-Track Zone Comparison Technique (Matte, 1978, 1980, 1989, 1996), which pairs each control-relevant question into a *Track*, and the polygraphist cannot jump the track (go outside of that track) to compare the relevant question with another control question located in another track. However, as is customary with both the Backster and Matte ZCT, each quantified relevant question is rotated in position with each chart conducted so that each relevant question is eventually compared with each control question in the same test.

However, several studies have been conducted in an attempt to resolve the issue of whether a comparison of a relevant question that displays a strong response should be made against the control question that elicited the strongest response, the control question that elicited the weakest response, or the control question preceding that relevant question for a pairing of control v. relevant questions. An examination of the literature on that subject is summarized below.

A Validation and Reliability Study of Counterintelligence Screening Test (CST) conducted by Gordon H. Barland (1991) revealed that when the relevant questions were compared to the single greatest control question reaction, it was very effective in identifying truthful subjects and truthful questions (89%); however "the greatest control method was unable to detect either the deceptive subjects or the deceptive questions at greater than chance levels. Therefore it should not be used in real-life situations unless future research is able to demonstrate that it is able to detect deception." However, the control questions used in Barland's study were Directed Lies, which have been shown (Matte, Reuss 1999) to be prone to false negatives. Barland's study did not address the effectiveness of comparison with the weakest control or the straight paired, but it did demonstrate the ineffectiveness of comparing the relevant question to the greatest control question reaction when using the CST.

Crowe, Chimarys and Schwartz (1988) conducted an analog study employing the General Question Test (GQT) format, which they labeled *a control question technique.* In this study, they compared the strongest control reaction to the reaction for each relevant question, and they also compared the weakest control reaction to the reaction for each relevant question. The results revealed that "Discounting inconclusive results, the strongest control was correct in six of seven deceptives (86%) and seven of seven nondeceptives (100%), for a total of 13 of 15 (93%). The strongest control resulted in an inconclusive rate of 16 of 30 (53%). The weakest control was correct in 17 of 17 deceptives (100%), but was correct for none of the nine nondeceptives (0%), for a total of 17 of 26 (65%). The weak control resulted in four inconclusive decisions (13%). However, the GQT traditionally and in this study employed disguised control questions, not Backster earlier-in-life control questions. In fact, only two Disguised Control Questions, i.e. "Do you intend to lie to any of the questions on this test?" and "Have you lied to me in any way since we have been talking today?" were used against at least double the number of relevant questions (Schwartz, 1999). This study did not replicate the format and psychological structure of the Zone Comparison Technique, hence its results cannot be factored into the analysis of the value of *greatest* versus *weakest* control question comparison when employed in the single-issue zone comparison technique such as the Backster ZCT.

"An Analysis of Zone Charts by Various Pairings of Control and Relevant Questions" conducted by Michael Koll (1979) involved the pairing of the Greater Control Question with neighboring relevant questions; the Greatest Control Question compared with all relevant questions, and the Straight Paired, which

compared each relevant question with the control question preceding it. Sixty charts equally divided into truthful and deceptive subjects from the files of the U.S. Army Polygraph School were evaluated. The conclusions of this study revealed that "The results of this study support the position that the greatest degree of accuracy with the lowest inconclusive rate for subjects in a mock crime can be attained in the Modified Zone Comparison Test with the Straight pairing CQ/RQ comparative evaluations." The Straight Pairs for the Truthful subjects, employing "the standard –/+ 6 for a decision, the straight-pair evaluations of two subjects (out of ten) were called inconclusive when they were actually truthful. No wrong calls were made." For the Deceptive subjects, there was one subject (out of ten) that was inconclusive when the straight pair evaluation was used, and no wrong calls. A comparison of validity and utility for the Greater control question, the Greatest control question and the Straight Pairs or paired control/relevant questions revealed that the straight pairs had a 100% validity with 85% utility and no errors; the Greater control question had a 100% validity with 75% utility and no errors, and the Greatest control question had a 93% validity with 70% utility and 5% error rate. The results of this study show that the Greatest control question had the least validity, accuracy and utility. The study favors the use of the straight pairs which is non-selective in its approach.

Capps and Ansley (1992) conducted a study where examiners were required to blind score forty sets of confirmed zone comparison charts that employed the DoDPI test format. Thirty-one of the examinations employed the zone comparison taught at DoDPI; the other nine used basically the same test format but replaced the symptomatic questions with irrelevant questions. Only the first relevant question within each test was used for comparison to the control questions (Abrams 1997, 1999). The examiners were instructed to "score against the strong control and separately score against the weak control." A fixed threshold of +/– 6 was used in the decision-making process, with lower scores classified as inconclusive. The results of Capps and Ansley's study revealed that "excluding inconclusives, the reviewers were correct in their analysis in 97.3% of the cases using the strong control procedure." An analysis of the same charts by the same reviewers using the weak control procedure revealed that "Excluding inconclusives, the reviewers were correct in 89.9% of the cases using the weak control scoring method." However, Capps and Ansley caution that "In fairness to Backster this approach should not be taken unless all the rules that are involved in the chart interpretation technique instituted by Backster are employed." Capps and Ansley further caution that "Our finding that use of the strong control is more accurate and reduces inconclusives is in

concert with the findings of others, but we are not yet prepared to recommend a change in the Backster system. We do believe our findings are sufficient to justify a full study on this aspect of scoring zone comparison charts."

The cautionary remarks by Capps and Ansley are well justified when we examine the methodology used in their research. Nine of the aforesaid examinations used in their study replaced the symptomatic questions with irrelevant questions. A study by Capps, Knill, Evans (1993) revealed that Symptomatic questions reduce inconclusives by two thirds, exactly as Cleve Backster had predicted. Furthermore, most tests examined used control questions that employed similar time bars within each test (Ansley 1999), as opposed to the Backster ZCT, which uses separate time bars within each test that completely divorces the time frame occupied by each control within the same test, i.e. 46. "Between the ages of 18 and 25, Do you remember ever engaging in an unnatural sex act?" and 47. "During the first 18 years of your life, do you remember ever doing anything sexually that you're ashamed of?" The Backster exclusive control questions, while in the same category, are independent of each other, thus less vulnerable to habituation and more likely to elicit individual attention and psychological set. The Capps and Ansley study employed a fixed threshold of –+6, which required the structurally weaker control questions to attain the same minimum score as the structurally stronger relevant questions. However, the Backster system requires a substantially lower score (threshold) for the Truthful, i.e. +3 for chart 1; +5 for 2 charts; +7 for 3 charts, versus the Deceptive which requires –5 for chart 1; –9 for 2 charts, –13 for 3 charts. Thus Backster's scoring system accepts lower scores (threshold) from the structurally weaker control questions to arrive at a Truthful decision. The use of only the first relevant question for comparison with the control questions by Capps and Ansley which was replicated by Abrams in his study skews the overall tally of the scores inasmuch as it omits the same comparison data from the other relevant question. Abrams (1997) points out that most of the confirmed cases used in the Capps & Ansley study were based on tests in which the stronger control procedure was used, and that "this could have given some advantage to the stronger control approach in their study, resulting in higher levels of accuracy for this procedure." Thus the results of the Capps & Ansley study "can only be generalized to tests administered in the same manner as in these studies."

Stanley Abrams (1997) conducted a study of twenty confirmed truthful and twenty confirmed deceptive charts which employed a single-issue zone comparison test format. Each examination consisted of two relevant questions and three control questions. Only the first relevant question was used for compari-

son in this study. Furthermore, Abrams used the fixed threshold of +−6 in his decision-making process. Abrams used the preceding control as the standard for ground truth in the evaluation of the effectiveness of comparisons to the stronger and weaker control questions. The results of Abrams' study revealed that, for the deceptive subjects, the stronger control was as accurate as the weaker control, to wit: 100 percent in each case; but the stronger control had a 10 percent inconclusive rate. For the truthful subjects, the stronger control attained a 100 percent accuracy with no inconclusives, while the weaker control attained a 92 percent accuracy with a 40 percent inconclusive rate. However, Abrams issued a cautionary remark regarding the results of the stronger control for the truthful, stating that "Since the preceding control was the standard used for ground truth, the complete accuracy with no inconclusives is misleading." Abrams recognized the limitations of his study using only the first relevant question for comparison with the various control questions (Abrams 1999), in that it skews the overall tally of the scores inasmuch as it omits the same comparison data from the other relevant question. As in the Capps and Ansley study, Abrams opined that his study can only be generalized to tests administered in the same manner as in his study.

Hence none of the aforementioned studies provide evidence that the Backster theory and rules regarding the comparison of relevant versus control questions are invalid and/or biased against the truthful (as later verified) examinee when specifically applied to the Backster "You Phase" Zone Comparison Technique.

Thus, of all of the aforementioned studies, only the Koll (1979) study comes close to replicating the Backster Zone Comparison format, but does not address comparison of a strong relevant question with the control question that elicited the least or no response.[4] However, for the same reason that the system of comparing the relevant question that elicited a strong reaction to the weakest control question can be criticized as being selective and biased in its comparison process against the truthful (as later verified) examinee, the system of comparing the same relevant question to the strongest control question can also be criticized as being selective and biased in its comparison process towards (for) the deceptive (as later verified) examinee.

[4] The Koll study, which most closely replicates the format of the Backster Zone Comparison Technique, supports the Matte Quadri-Track Zone Comparison Technique's use of tracks which pairs each control question with the relevant question that follows it, isolating them inside a track which prohibits jumping (leaving) the track for comparison with another control question. Inasmuch as each relevant question is switched in position with each chart conducted, each relevant question is eventually compared with each control question within the same test.

In the interpretation of physiological responses to relevant versus control questions, it must be recognized that a strong response to a control question may be a genuine response from an innocent (as later verified) examinee, or a fabricated response from a guilty (as later verified) examinee that employed a countermeasure. A third possibility is a strong response from a guilty (as later verified) examinee who finds the contents of the control question equally threatening due to a defect in its construction.

The initial focus in the interpretation of physiological responses must be on the relevant questions, because they are the reason for the examination, and are least likely to be faulty in their construction due to the required specificity, accuracy and completeness of the case information from which the relevant questions are formulated. On the other hand, the control questions are necessarily broad in nature and embrace unknown events which can include the commission of serious offenses, some of which may offer an equal or greater threat to the guilty (as later verified) examinee than the relevant questions.

Therefore, Backster's chart interpretation rule, which assumes that a relevant question which elicits a strong response is functioning as designed due its ideal formulation, and a neighboring control question which also elicits a strong response is defective, appears to have theoretical and face validity. None of the above cited research studies offer valid, applicable results which contradict Backster's concept and rule.

The Backster Zone Comparison Technique employs an increasing threshold for both the Deceptive and the Truthful examinee. Other techniques (excluding the Matte Quadri-Track ZCT) employ a fixed threshold, usually a plus or minus 6, regardless of the number of charts conducted. With the Backster ZCT, the score required to attain a definite decision (threshold) of Truthfulness is significantly less than that required to attain a definite decision of Deception. For example, the Backster system requires a −5 for the first chart, −9 for 2 charts, and −13 for 3 charts in order to render a decision of Deception. Whereas a +3 for the first chart, +5 for 2 charts and +7 for 3 charts is required in order to render a Truthful decision. Hence the Innocent (as later verified) examinee is provided with a generously lower score threshold to attain a decision of truthfulness.

It therefore became apparent that, in order to determine the validity of Backster's "Either-Or" Rule, which dictates that when using the Backster "You Phase" Zone Comparison Technique, a relevant question that elicits a strong

response must be compared to the control question that elicited the least or no response, a field research study of actual cases that religiously employed the Backster ZCT with all of its rules needed to be conducted.

The cases that would have produced a strong response to the relevant questions should expectedly come from verified guilty examinees. Verified innocent cases would not be expected to produce strong responses to the relevant questions unless false positive physiological results occurred. The Backster ZCT requires that "If the red zone indicates a lack-of-reaction it should be compared with the neighboring green zone containing the larger timely reaction." Hence, regardless of the number of confirmed truthful cases found, the fact that they were confirmed truthful required that the control questions elicit and show a significantly greater response than its neighboring relevant questions, hence the Backster method as well as the others would compare the relevant question that elicit the least or no response to the control question that elicited the greatest response, thus negating our attempt to determine the validity of Backster's Either-Or rule when there is the presence of a strong reaction to the relevant question(s). In this instance, there were only five confirmed truthful cases found for the aforesaid period. Strong responses to the relevant questions from which a comparison could be made with the three methods of relevant/control comparison could only be expectedly found in verified guilty cases. In the instant study, all confirmed cases for the period 1 January 1998 to 1 September 1999 were reviewed and no confirmed false positives or negatives were found.

There are two other methods of relevant/control question comparison. One requires that a relevant question which elicits a strong response be compared with the control question that elicited the greatest response. The other requires that a relevant question, regardless of the strength of its response, be compared with the control question that preceded it. It therefore seemed logical to test all three methods of relevant/control question comparisons to determine the accuracy of each of the three procedures.

Method

The Commonwealth of Virginia Department of State Police assigned six experienced polygraphists under the leadership of Special Agent Gary M. Jenkins to review and score the polygraph charts of all confirmed guilty cases acquired from seven field offices that were conducted during the period 1 January 1998

to 1 September 1999. One hundred forty-six criminal cases, including the polygraph charts and related notepacks, were submitted for review. Twenty-three of those cases were rejected because they were not Backster "You Phase" Single-Issue Zone Comparison tests. Hence, 123 confirmed guilty cases comprising a total of 270 polygraph charts were used in this study. There were no errors found to have been committed by the original polygraphists who conducted the 123 confirmed guilty psychophysiological veracity (PV) examinations administered during the period 1 January 1998 to 1 September 1999. Test results were confirmed by confession (115) and conviction (8).[5] There were only five recorded confirmed truthful cases found for the aforesaid period and none of them contained a strong response to the relevant questions, hence were not candidates for the three comparisons in this study which required that the relevant question(s) elicited a strong response. In addition, eleven confirmed truthful cases were provided by Tuvia Shurany (2003), who had a team of three polygraphists analyze and score the charts in accordance with the requirements of this study. These 11 confirmed truthful cases revealed only 5 spots containing a significant deceptive score out of a total of 174 spots, of which 169 contained no significant reactions, and those 5 spots did not affect the accuracy of the results which were confirmed as truthful. Consistent with the previous 5 confirmed truthful cases that were not viable candidates for the three comparisons in this study, the 11 confirmed truthful cases from Shurany were also not viable candidates. It becomes quite apparent that in order to test the accuracy of the three methods of scoring charts when there is a strong response to the relevant question we use confirmed *deceptive* cases that are expected to produce significant responses to the relevant question which will test Backster's "Either-Or" rule in comparison with the other two methods of scoring charts.

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[5] A study by C. Ronald Huff, Arye Rattner and Edward Sagarin (1986) estimated that the rate of wrongful convictions (irrespective of polygraph evidence) in the United States is one-half percent (0.5%). In a study by Gary D. Light and John R. Schwartz (1993 &1999) the authors point out that the argument against field studies of PV examinations that use confessions as ground truth is not substantiated by the results of their study which employed confessions as ground truth but the results were also confirmed by the findings of the other disciplines used in that same study. The authors state "While there can be no question that examinations verified by confession are a unique subset of PDD examinations, this study indicates that this bias has a minimal impact, and confession-based samples would accurately reflect the overall population." They further indicated that their assertion was further substantiated by another study (Mason 1988) in which 111 PV examinations were performed and ground truth was established by urinalysis. The validity of these PV examinations which were confirmed by biomedical tests was in excess of 95% and if confessions are used in conjunction with urinalysis examinations, the accuracy of that confession subset rises to over 98%.

The Backster Zone Comparison Technique employed in each of the aforesaid 123 cases used two relevant questions, numbered 33 and 35 for comparison to their neighboring control questions number 46, 47 and 48. Each of the relevant questions was compared in each tracing (Pneumograph, Electrodermal, Cardiograph) with the control question that elicited (a) the least or no reaction, (b) the greatest reaction, (c) the preceding (previous) control question, and a score was acquired for each comparison in each tracing, which was recorded on a data sheet. Inasmuch as the Backster ZCT is a true Single-Issue test wherein the two relevant test questions pertain to the same act, the scores from each relevant question can and were horizontally tallied for a total score in each chart quantified. It should be noted that each of the three methods of scoring was conducted by a different polygraphist blind to ground truth to avoid being influenced by the results of the other methods used in the same case (Jenkins 2002, Gibbs 2002).

Analysis and tabulation of the data indicated the following:

	Control with Least or No Reaction	**Control with Greatest Reaction**	**Previous Control (Control to Left)**
Total Inconclusives:	33 = 12.1%	95 = 35.3%	63 = 23.5%
Total False Negatives:	None	2 = 0.7%	None
Total Scores:	–1488	–668	–1100
Number of Charts:	270	269	268
Mean Number of Charts:	2.20	2.19	2.18
Average Score per Chart:	–5.51	–2.48	4.10
Average Score Per Case:	–12.12	–5.43	–8.94

The 123 cases representing 270 polygraph charts averaged 2.2 charts per case. Two false negatives would have occurred using the Greatest Reaction Control (GRC), and the GRC produced the greatest number of Inconclusives at 35.3%. The comparison of the relevant questions with the control question that elicited the least or no reaction produced the least number of inconclusives and with no errors, followed by the comparison of the relevant questions with the control question that preceded the particular relevant question with no errors.

The results of this field research study supports Backster's "Either-Or" Rule of comparison of the relevant question that elicits a strong reaction with the control question that elicits the least or no reaction, and refutes the contention that

its practice makes the Backster Zone Comparison Technique biased against the Innocent examinee. Furthermore, three field studies (Matte, Reuss 1989a, 1989b; Mangan, Armitage, Adams 2008; and Shurany, Stein, Brand 2009) on the Quadri-Track Zone Comparison Technique which employs Backster's "Either-Or" Rule (Backster 1989, Matte 2007), supports its validity.

In conclusion, this field study reveals that of the three methods of relevant/control question comparison, the comparison of a relevant question that elicited a strong response to the control question that elicited the least or no response was the most effective in terms of accuracy with the lowest inconclusive rate, which supports Backster's theoretical concept and chart interpretation rules, and refutes the notion that its methodology is biased against the innocent.

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