Polygraph

JOURNAL OF THE AMERICAN POLYGRAPH ASSOCIATION

Volume 7 December 1978 Number 4

PUBLISHED QUARTERLY

P.O. Box 74, Linthicum Heights, Maryland 21090

POLYGRAPH QUADRI-ZONE COMPARISON TECHNIQUE

By

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The Quadri-Zone Comparison Technique, a modification of the Tri-Zone Comparison Technique, provides a fourth zone of comparison designed to recoup response energy lost by the other zones as a result of "inside issue" factors. It further provides a qualitative modification of the conversion table currently used in the numerical scoring system of chart analysis as developed by Cleve Backster on the basis of scientific principles rather than empirical data.

Part I

"Inside Issue" Factor

Several years ago, Cleve Backster developed two symptomatic questions[1] which he inserted into his Zone of Comparison polygraph technique to identify any "outside issue" that might interfere with the polygraph examination. Backster hypothesized that an examinee might fear that an unreviewed question embracing an area more threatening to the examinee yet unconnected to the matter under investigation might be asked during the examination. This fear might cause a dampening of both the control and the relevant questions resulting in inconclusive findings. Backster's remedy was to reassure the examinee that no unreviewed questions would be asked during the examination, and introduced two symptomatic questions into the test to determine whether the examinee was, in fact, convinced that no surprise questions would be asked during the test. The validity of the symptomatic questions in identifying the "outside issue" factor[2] is well documented.

The purpose of this thesis is to identify "inside issue" factors that might interfere with the polygraph examination, and offer a remedy that will identify the presence of the "inside issue" factor and prevent its anti-climax dampening effect.[3]

Exclusive control questions[4] encompass a period of time necessarily divorced from the period of the crime for which the examinee is being polygraphed. The control questions (probable lie) are therefore structurally

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[1] Backster Standardized Polygraph Notepack and Technique Guide, 1963 ed.

[2] Backster, C., "Outside Issue" Factor, Backster School of Lie Detection, Notes, 1972.

[3] Backster, C., "Anticlimax Dampening Concept," Polygraph 3(1)(March 1974): 48-50.

[4] Raskin, D.C., Barland, G.H., Podlesny, J.A., "Validity and Reliability of Detection of Deception," Polygraph 6(1)(March 1977): 1-39.

less intense than the relevant (crime) questions. For example, if the examinee is 25 years of age and the crime occurred on his 25th birthday, the control questions would not embrace a period later than his 23rd birthday.

The intensity and magnitude of the threat conveyed by the crime question will depend upon the security of the examinee regarding the possible outcome of the polygraph examination. The guilty examinee's "fear of detection" will be proportionate with the seriousness of the crime and his perception of the expertise of the polygraphist and the accuracy of the polygraph examination.

The degree of response to the crime questions is directly related to the degree of fear the guilty examinee has about being detected.

The innocent examinee's "fear of error" will also be proportionate with the seriousness of the crime and his perception of the expertise of the polygraphist and the accuracy of the polygraph examination.

The greater the "fear of error" on the part of the innocent examinee, the more threatening the crime questions become to him. The degree of dampening effect the "fear of error" has upon the control questions depends upon the intensity of the threat offered by each type of question.

If the reader can envision a see-saw with the control questions on one end and the crime questions on the other end, ideally we should have one end up and the other end down. If the see-saw is parellel, the results are inconclusive.

The lack of competition by weak or ineffective control questions will increase the risk of erroneously deceptive results from an innocent examinee whose "fear of error" is pronounced.

It is not unusual to hear an examinee express his fear of error during the pre-test interview, and hopefully the polygraphist is able to dispel these fears by explaining the instrumentation and the physiology involved, and the fact that several charts will be conducted and they will be analyzed through a quantification system permitting a second polygraphist to review his charts. The use of the Stimulation test[5] is certainly an effective means of reassuring the innocent examinee of the effectiveness and accuracy of the polygraph technique.

However, we have so far no means of identifying the examinee who still has a "fear of error" in spite of the above recommended procedures. Furthermore, we have no means of measuring the degree of his "fear of error."

I, therefore, propose that the following "fear of error" question be inserted into control-question examination, to be positioned immediately after the last relevant question:

ARE YOU AFRAID AN ERROR WILL BE MADE ON THIS TEST?

[5]Reid, J.E., Inbau, F. E., Truth and Deception, The Polygraph ("Lie Detector") Technique. Williams & Wilkins Co., Baltimore, 1966, p. 68.

The above question may be introduced by explaining that it is designed for the innocent examinee who for some reason is afraid that an error will be made and the test will find him guilty. After offering substantial reasons that should convince the examinee that an error will not be made, a negative answer is hopefully obtained.

A response to the aforementioned "fear of error" question should alert the polygraphist regarding responses to the relevant questions versus lack of response to the control questions. In such a situation, the polygraphist should accentuate the control questions by reviewing only the control questions with the subject, and if the same problem persists, a new set of control questions should be introduced. In this manner, the polygraphist is focussing the examinee's psychological set away from the crime questions onto the control questions while attempting to determine if the control questions are ineffective or too weak to compete with subject's apparent strong "fear of error."

The "fear of error" question should be considered a control question to which only the truthful examinee may respond. This question, therefore, not only acts as a problem identifier, but can also serve to buttress or augment the numerical score of the control questions when a response is shown. This "fear of error" control question would serve to add needed truthful points lost from the control questions as a result of the examinee's "fear of error." In other words, whatever response energy lost by the control questions as a result of the subject's psychological set being unduly focussed onto the relevant questions because of his "fear of error," that energy is recaptured by the "fear of error" question which is included in the control question group that is numerically quantified for a determination. This is made possible by not increasing the required score in the truthful area to reach a determination in spite of the fact that a control question has been added. The reasoning is that whenever a response is elicited from the "fear of error" question, a comparable loss of response will be felt on the other two control questions as a result of the subject's focus onto the relevant questions whose responses will be competing against those two control questions.

During the review of the "fear of error" control question with the examinee, which occurs after the review of the last of the two probably lie control questions, the examinee should normally answer that question in the negative. However, if he does answer in the affirmative, the polygraphist should then take the necessary time to convince him of the accuracy of the instrument by the fact that it is regularly calibrated and of its unbiasness by the fact that it is an inanimate object. Further, that the interpretation of the charts is totally objective due to its quantification system of analysis which possesses a built-in safeguard that requires an overwhelming numerical score from two or more charts in order for someone to be found deceptive and the standardization of the technique which permits double verification by a polygraph laboratory.

The polygraphist should then advise the examinee that in addition, he will administer to the examinee a sensitivity test at the very beginning of the examination to determine whether he is, in fact, a testable subject, and further determine his minimum capability of response. After the

sensitivity test (Stimulation Test), the examinee should then be thoroughly convinced of the accuracy of the test and the polygraphist should then be able to elicit a negative answer to the "fear of error" question.

If, however, the examinee still persists in giving an affirmative answer to the "fear of error" question after a successful sensitivity test has been administered, the polygraphist should then accept that answer from the examinee and instruct him to answer that question likewise on the test.

If the examinee's "fear of error" is, in fact, that severe, the "fear of error" question will provide the examinee with a psychological outlet upon which to relieve that fear.

The fact that he is answering the question truthfully does not prevent the examinee from responding to that question as evidenced by the Silent Answer Test.[6] The fact that this question specifically relates to that innocent examinee's greatest fear will draw his psychological set upon that question offering sympathetic relief.

Another possibility is that a guilty examinee may offer an affirmative answer to the "fear of error" question as a countermeasure. While this examinee's answer will be a lie, the nature of this lie will be trivial to the guilty examinee in comparison to the lie he will also be telling in the next question also dealing with an "inside issue" factor which will be used for intercomparison.

This next question which I shall call the "resignation" question is a relevant question which is used to counterbalance the above "fear of error" control question, yet provide a means of identifying the guilty but defeated and resigned examinee whose fear of detection has been rechanneled into hope of defeating the examination.

This type of examinee has a defeatist attitude, whether because of overwhelming evidence against him or some other factor, he has lost the will to fight and has resigned himself to whatever fate befalls him. He has not confessed to his crime, but simply became passive. The prospect of "passing" a polygraph examination which may be of assistance in his cause is of greater emotional importance than "fear of detection" to a crime he feels "detected" but not proved. In such an instance, crime questions may elicit only mild responses. Therefore, the following "resignation" question would serve to capture response energy rechanneled from "fear of detection" into "hope of passing" the polygraph test.

The below "resignation" question should be inserted immediately after the "fear of error" question. In this manner, the examination will be properly balanced, inasmuch as the test normally should include an equal number of control questions versus relevant questions.

ARE YOU HOPEFUL AN ERROR WILL BE MADE ON THIS TEST?

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[6] Horvath, F.S., and Reid, J.E. "The Polygraph Silent Answer Test." The Journal of Criminal Law, Criminology and Police Science 63(2)(1972).

The above question may be introduced by explaining that it is designed for the guilty examinee who is hopeful that somehow an error will be made and the test will find him innocent. Obviously only a guilty examinee will hope an error is made on the test. Yet a negative answer is expected from all examinees.

A response to the aforementioned "resignation" question should alert the polygraphist regarding the lack of adequate response to the relevant question. This "resignation" question is considered a relevant question, therefore, a response to this question can be numerically scored and added to the total points obtained from the relevant questions weakened as a result of the examinee's defeated resignation.

If the guilty examinee has not, in fact, adopted a defeated attitude, then the relevant question having the greatest threat to his well-being will elicit subject's psychological set followed by the second relevant question having the next greater threat to the subject's well-being. Whereas the "resignation" question which is broad in nature becomes the weakest of the relevant questions, it may therefore elicit little or no response. This phenomenon is well described by Cleve Backster in his "outside issue" factor wherein he explains that oftentimes an examinee will attempt deception to one or more relevant questions on a test and will show reaction to those questions yet will show no reaction to the "catch all" question located at the end of the test, such as "Have you deliberately lied to any of these questions?" even though it is known that the subject did, in fact, lie to that question also. This phenomenon is called the anti-climax dampening concept which holds that an examinee's focus or psychological set will be directed onto those questions having the greatest threat to his well-being, dampening out questions of a lesser threat on the same test. Therefore, it is possible for an examinee to be lying to four or five questions on one test yet show a reaction on only one or two questions, those having the greatest threat to his wellbeing which will dampen out neighboring questions of a lesser threat.

It must be noted that in the overall tally of the numerical scores, more total points are required to arrive at a finding of deception than truthfulness due to the fact that relevant questions are structurally more intense and threatening than control (probable lie) questions.

In the analysis and quantification of the aforementioned "fear of error" control question and "resignation" (relevant) question, these two questions should be compared against each other in the same manner that the other relevant questions are compared against their neighboring control questions. A determination must be made in each individual tracing regarding which of these two questions displays the most physiological evidence of sympathetic and para-sympathetic activity and one score either in the plus (truthful) area or in the minus (deception) area is assigned in each tracing.

The addition of two questions in a specific type polygraph examination will undoubtedly cause concern to those polygraphists who are still using a mechanical polygraph instrument without the availability of an electronically enhanced cardio cuff which permits lower cuff pressure. The additional 50 seconds required to implement the aforementioned "inside issue" questions may

be obtained by removing "catch all" questions, or experimental questions located outside the zone of comparison. Control-question techniques that employ a greater number of relevant questions than control questions can effectively omit the weakest relevant question(s) in order to achieve an equal balance between control and relevant questions.

The following Quadri-Zone Comparison Technique consists of an ameliorated Backster Zone of Comparison[7] test incorporating the two "inside issue" factor questions discussed above which are reflected as questions number 23 and 24.

POLYGRAPH QUADRI-ZONE COMPARISON TECHNIQUE

	14J	Were you born in the United States?
	39	Regarding whether or not you stole that $1000 discovered missing from the safe at ABC Markets on 12 Jan 77, do you intend to answer truthfully each question about that?
ZONE #1	25	Are you completely convinced that I will not ask you an unreviewed question during this chart?
	#2 46	Between the ages of 18 and 23, do you remember ever stealing anything?
	33	Did you steal that missing $1000 from ABC Markets?
	#3 47	During the first 18 years of your life, do you remember ever stealing anything?
	35	Regarding that $1000 missing from the safe at ABC Markets on 12 Jan 77, did you steal that money?
	#4 23	Are you afraid an error will be made on this test?*
	24	Are you hopeful an error will be made on this test?*
	26	Is there something else you are afraid I will ask you a question about, even though I told you I would not?
	44J	Regarding drugs, are you holding back information about any drugs or medication you have taken during the last 12 hours?

*It is conceivable that an examinee who is truthful regarding the issue for which he is being polygraphed might nevertheless hope that an error be made on the test regarding the control questions to which he is attempting deception. Therefore, it is imperative that the polygraphist emphasize that questions 23 and 24 pertain to the issue for which the examinee is being polygraphed. As a precaution, the author has been adding the suffix "Regarding this arson, theft, burglary," etc., to both questions 23 and 24.

PART II

QUALITATIVE QUANTIFICATION SYSTEM IN POLYGRAPH CHART ANALYSIS

The advantage of the comparison technique where each relevant question is compared against its neighboring control (probable-lie) question for a presence or absence of sympathetic and para-sympathetic activation, is that it lends itself to a numerical scoring system in the analysis of each chart tracing, i.e., breathing, psychogalvanic reflex, and cardio. A score is assigned in each tracing to each set of relevant versus control question on the basis of rules and standards established from logic and experience. When all scores are tallied, a conclusion regarding truth or deception must be made from this tally by means of a conversion table which appears to be based upon empirical data obtained from previous verified polygraph examinations.[8]

While the source for the present conversion formula appears to be demonstrably reliable on the basis of past experience, this author believes that the formula should be ameliorated to conform with basic requirements of logic and consistency in order to meet scientific standards that are defendable in the courts.

In order to understand the basis of this qualitative standard, a brief description of the numerical scoring (quantification) system is herewith discussed.

In chart interpretation, the polygraphist must not allow a significant reaction in one tracing to influence his evaluation of that same relevant question in the other tracings. He also must not allow a strong reaction in any or all tracings to one relevant question to influence his evaluation of the other relevant questions on the same chart.

To attain an objective measure of the reactions or lack of reaction to each relevant question in each of the three tracings, a numerical scoring system was designed to provide the polygraphist with a means of objectively evaluating each relevant question versus its neighboring control question, hereafter referred to as a set of relevant/control questions, in each tracing according to chart interpretation rules with penalties for violation of those rules, by the assignment or scoring of each set with a number from a seven-position scale described below:

MT	T	t	?	d	D	MD
VALUE	VALUE	VALUE	VALUE	VALUE	VALUE	VALUE
+3	+2	+1	0	-1	-2	-3

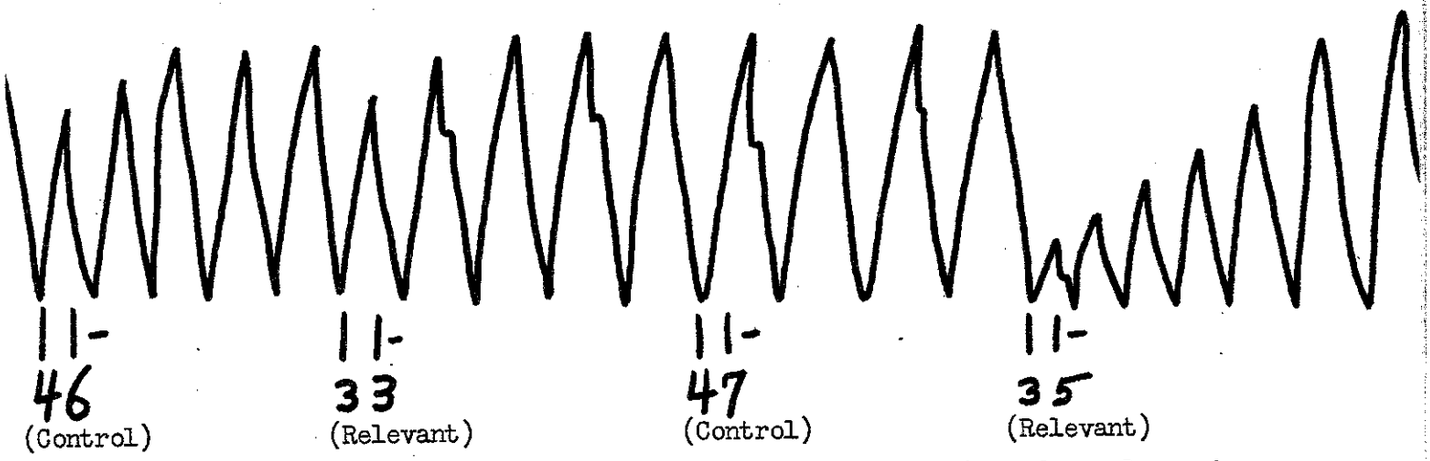
Numbers preceeded by a minus sign fall into the deceptive area; numbers preceeded by a plus sign fall into the truthful area. An explanation of the above-described seven-position scale is as follows:

+1 (t) Minimum Truthful Score
+2 (T) Truthful Score

+3 (MT) Maximum Truthful Score
-1 (d) Minimum Deception Score
-2 (D) Deception Score
-3 (MD) Maximum Deception Score

Now we will apply the above seven-position scale in actual charts beginning with the top tracing on the chart, the breathing tracing.

The polygraphist examines the first set of relevant-control questions within the zone of comparison on the chart. The control question No. 46 preceeds the first relevant question No. 33 which is followed by the second set of relevant-control questions as indicated below:



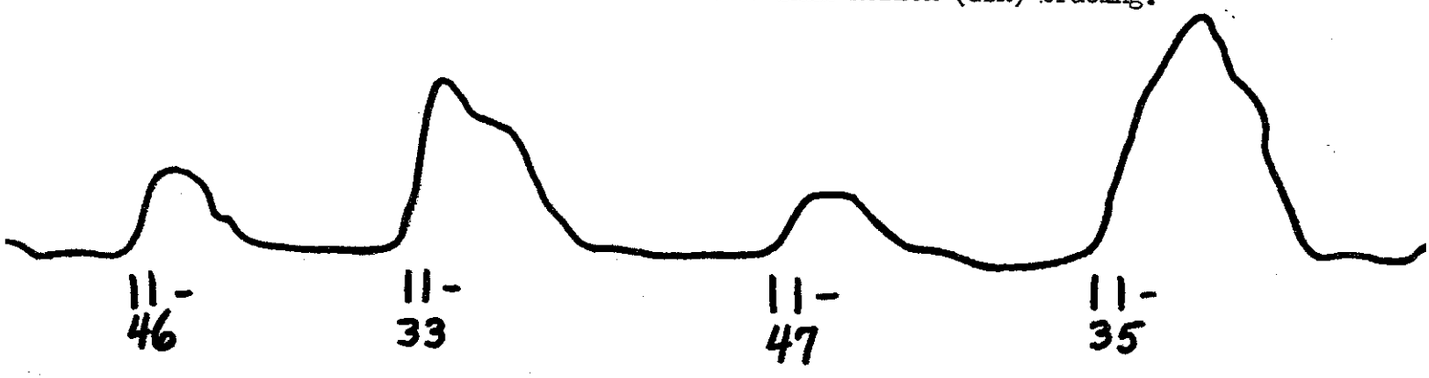
The above illustration reflects a slight suppression of equal magnitude in both the relevant question No. 33 and the neighboring control question No. 46 indicating mild sympathetic activation to both questions, but no evidence of para-sympathetic activation, inasmuch as there is no relief pattern in the form of hyperventilation because the suppression is mild. The polygraphist can always turn to the other neighboring control question No. 47 for comparison purposes but he cannot ignore a reaction to question No. 46.

When there is a presence of mild reaction in both the relevant question and its neighboring control question of equal magnitude, such as above where there is no presence of parasympathetic activation, a numerical value of zero (?) must be assigned to this question set in the breathing tracing. However, when there is a presence of strong reaction manifested by distinct activation of both sympathetic and parasympathetic systems in both the relevant question and its neighboring control question of equal magnitude, a minimum deception score must be given to this question set in the breathing tracing for a score of -1 (d). The rationale being that both questions appear to be equally threatening to the examinee, its degree being proportionate to the degree of the responses, which indicates that while the examinee may be attempting deception to the relevant question, its neighboring control question may be too intense due to faulty structure, embraces a more serious unknown crime, or a countermeasure attempt was made by deliberate intense

concentration on the control question. The polygraphist must keep in mind that an examinee may be able to cause a reaction on the control question but cannot control an oncoming reaction on the relevant question.

Due to the addition of the "inside issue" factor question set (questions 23 and 24), the polygraphist is now able to determine whether a reaction on the relevant question, especially in the situation described above, is due to "fear of error" or genuine fear of detection. If there is equally mild reaction in control question No. 46 and relevant question No. 33 as illustrated in the diagram above, and there is also a presence of strong reaction in the "fear of error" question No. 23, the polygraphist may safely assume that the mild reaction at relevant question No. 33 was caused by his "fear of error," therefore he should administer a stimulation test following this chart to reassure innocent as later verified examinee. However, if there is a presence of strong reaction at the "resignation" (relevant) question No. 24 with an absence of reaction at question No. 23, the polygraphist may assume that the presence of reaction at relevant question No. 33 is due to a genuine fear of detection, but that its neighboring control question is too intense for reasons that the polygraphist should not attempt to uncover for fear of raising an "outside issue" but should definitely eliminate from the test by changing the age category or the scope of the control question. Furthermore, a stimulation test should be administered immediately following this chart to stimulate the guilty as later verified examinee's psychological set, onto the question having the greatest threat to his well-being.

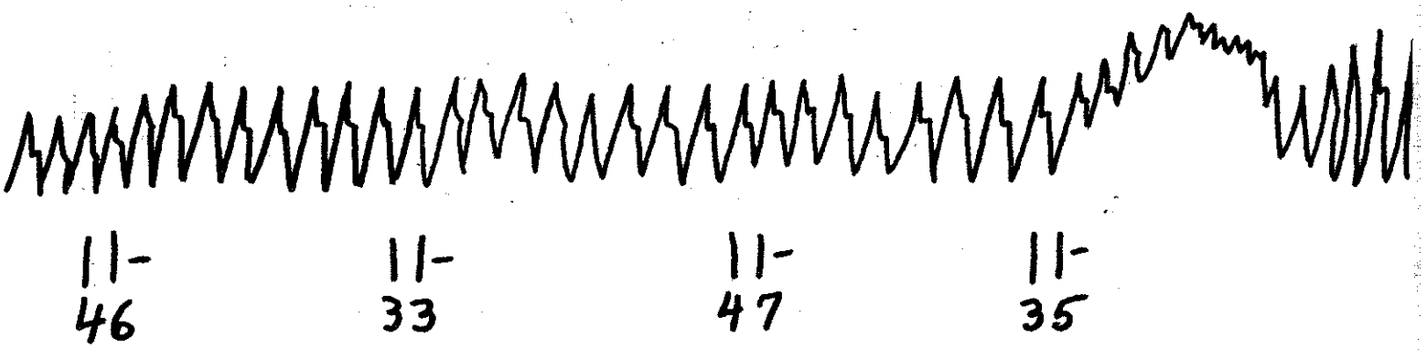
The polygraphist remains with this first question set and evaluates the next tracing below which is the Galvanic Skin Reflex (GSR) tracing:



In the analysis of the GSR tracing a minimum ratio of two to one must be attained for a minimum truthful or minimum deception score (+1 or -1). A ratio of three to one must be attained for a score of truthfulness or deception (+2) (T) or (-2) (D). A ratio of four to one or higher must be attained for a score of maximum truthfulness or maximum deception (+3) (MT) or (-3) (MD).

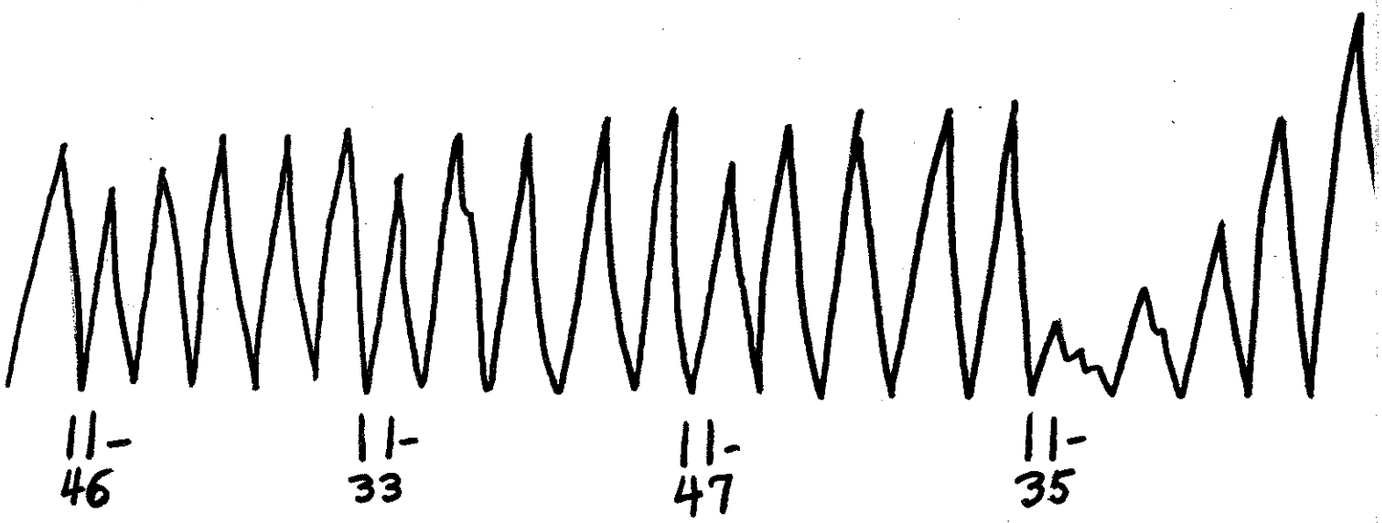
In the above tracing, the pen excursion in question No. 33 reached a height double that of question No. 46 affording a score of only -1 (d).

The polygraphist now drops his sight to the bottom tracing which is the cardio and evaluates the first question set.



Inasmuch as there is equal mild blood pressure arousal in both questions No. 33 and 46 being intercompared, the same rule as outlined above in the breathing tracing applies. A score of zero (?) is assigned to this question set.

We now turn to the second set of relevant-control questions, from the top tracing downward in the same fashion as the first question set:



Question No. 35 above reflects significant suppression followed by hyperventilation signifying that both the sympathetic and para-sympathetic systems activated on this relevant question. The neighboring control question No. 47 reflects mild suppression with no evidence of a relief pattern. Therefore a score of -2 (D) or deception is given to this question set in the breathing tracing.

The polygraphist now examines the same question set in the GSR tracing previously illustrated and finds that the pen excursion of the relevant question No. 35 is three times as high as its neighboring control question No. 47.

Inasmuch as the ratio is three to one in favor of the relevant question, a score of -2 (D) deception is given to that question set.

We now turn our attention to the bottom chart tracing, namely the cardio and find that there is a substantial blood pressure arousal at question No. 35 and only mild arousal at question No. 47. Therefore, we must arrive at a score of -2 (D) deception in the analysis of this tracing.

Relevant-Control question sets can only be upgraded to +3 (MT) or -3 (MD) if there is a strong reaction and relief pattern with absolute purity of tracing in one question and a complete or near complete lack of reaction to its neighboring question being used for intercomparison.

Purity means that the tracing contains typical characteristics that are distinct and clean with a lack of distortion or non-typical characteristics.

If either the relevant question zone or the control question zone being intercompared is less than twenty seconds of chart time from the examinee's answer to the beginning of the next question, or more than twenty-five seconds of chart time during that same zone, a score of Truth (T) or Deception (D) cannot be upgraded to Maximum Truth (MT) or Maximum Deception (MD). Furthermore, upgrading of Truth or Deception cannot be made if amplifier sensitivity has been increased or decreased during any portion of the two question zones being intercompared.

If a "yes" answer is given by the examinee to a control question (Probable lie) during the actual examination in spite of instruction to the contrary during the review of the test question, that question zone cannot be used as an indication of reaction to that control question. However, a lack of reaction under the same circumstances can be used in comparing the control question to its neighboring relevant question, however, a maximum score of -2 (D) only can be given.

A minimum of two charts must be run in each test in order to attain consistency of response, so that any stray emotion that may possibly cause a reaction will not have a serious effect on the overall trend. In order to arrive at a solid conclusion of either truthfulness or deception regarding the target issue, we must have consistent response to either the control questions or the relevant questions.

In tallying the scores obtained from each tracing and each relevant-control question set, we must eliminate from each question set the score which is the lowest in number or the score that does not follow the general trend of the overall tally. (See example below.)

	Question No. 33		Question No. 35	Question No. 24
Breathing	d = -1	(eliminates lowest score or that	D = -2	d = -1
GSR	d = -1	score which does not follow over-	D = -2	? = 0
Cardio	d = -1	all trend of 2 complete charts)	D = -2	? = 0
	TOTAL: -2		TOTAL: -4	TOTAL: -1

FIRST CHART GRAND TOTAL: -7

It must be noted that Relevant-Control question set No. 24 is not expected to yield strong responses unless an "inside issue" factor is present. Should this occur, milder responses may be expected in the other two Relevant-Control question sets.

Elimination of the weakest score necessitates a tally of strong scores in order to attain a tally high enough to arrive at a definite conclusion of either truthfulness or deception. Otherwise inconclusive results are obtained in which case the examinee is rescheduled for another examination.

The score table illustrated below reflects a change from the Backster score table in that Relevant-Control question set No. 24 has been added to the tally.

TRI-ZONE QUANTIFICATION SYSTEM

SCORE TABLE

PEC-1	TRUTH	INDEF	DECEP	ELIMINATE ONE		TRUTH	INDEF	DECEP	ELIMINATE ONE		TRUTH	INDEF	DECEP	
NE 33	+3 +2	+1 0 -1	-2 -3	=( )	35	+3 +2	+1 0 -1	-2 -3	=( )	24	+3 +2	+1 0 -1	-2 -3	=( )
SR 33	+3 +2	+1 0 -1	-2 -3	=( )	35	+3 +2	+1 0 -1	-2 -3	=( )	24	+3 +2	+1 0 -1	-2 -3	=( )
AR 33	+3 +2	+1 0 -1	-2 -3	=( )	35	+3 +2	+1 0 -1	-2 -3	=( )	24	+3 +2	+1 0 -1	-2 -3	=( )
PEC-2	TRUTH	INDEF	DECEP	ELIMINATE ONE		TRUTH	INDEF	DECEP	ELIMINATE ONE		TRUTH	INDEF	DECEP	ELIMINATE ONE
NE 33	+3 +2	+1 0 -1	-2 -3	=( )	35	+3 +2	+1 0 -1	-2 -3	=( )	24	+3 +2	+1 0 -1	-2 -3	=( )
SR 33	+3 +2	+1 0 -1	-2 -3	=( )	35	+3 +2	+1 0 -1	-2 -3	=( )	24	+3 +2	+1 0 -1	-2 -3	=( )
AR 33	+3 +2	+1 0 -1	-2 -3	=( )	35	+3 +2	+1 0 -1	-2 -3	=( )	24	+3 +2	+1 0 -1	-2 -3	=( )
PEC-3	TRUTH	INDEF	DECEP	ELIMINATE ONE		TRUTH	INDEF	DECEP	ELIMINATE ONE		TRUTH	INDEF	DECEP	ELIMINATE ONE
NE 33	+3 +2	+1 0 -1	-2 -3	=( )	35	+3 +2	+1 0 -1	-2 -3	=( )	24	+3 +2	+1 0 -1	-2 -3	=( )
SR 33	+3 +2	+1 0 -1	-2 -3	=( )	35	+3 +2	+1 0 -1	-2 -3	=( )	24	+3 +2	+1 0 -1	-2 -3	=( )
AR 33	+3 +2	+1 0 -1	-2 -3	=( )	35	+3 +2	+1 0 -1	-2 -3	=( )	24	+3 +2	+1 0 -1	-2 -3	=( )
PEC-4	TRUTH	INDEF	DECEP	ELIMINATE ONE		TRUTH	INDEF	DECEP	ELIMINATE ONE		TRUTH	INDEF	DECEP	ELIMINATE ONE
NE 33	+3 +2	+1 0 -1	-2 -3	=( )	35	+3 +2	+1 0 -1	-2 -3	=( )	24	+3 +2	+1 0 -1	-2 -3	=( )
SR 33	+3 +2	+1 0 -1	-2 -3	=( )	35	+3 +2	+1 0 -1	-2 -3	=( )	24	+3 +2	+1 0 -1	-2 -3	=( )
AR 33	+3 +2	+1 0 -1	-2 -3	=( )	35	+3 +2	+1 0 -1	-2 -3	=( )	24	+3 +2	+1 0 -1	-2 -3	=( )

Total: _____ BEST 2 OR MORE CHARTS Total: _____ Total: _____
TARGET ( ) GRAND TOTAL FOR ( ) CHARTS: _____

The grand total score for two or more charts obtained from the Score Table illustrated above is applied to the Conclusion Table depicted below which reflects the numerical range that must be attained to reach a definite conclusion by the number of charts conducted. Although a range is given for a single chart, this by no means indicates a conclusion should be rendered in less than two charts. The single chart tally is furnished to show progression in the tally and further afford the polygraphist a means of spot analyzing his charts after each test to identify and remedy any problem areas before continuing the examination.

The Conclusion Table depicted below reflects a change from the Backster table in that a slightly lower score is required to obtain a finding of truthful inasmuch as reaction to control questions which are of lesser intensity than relevant questions are not expected to be as pronounced, yet the score is still within the acceptable limits of the Utah Study. The score requirements for Deception in the second, third and subsequent charts were also changed to coincide with the requirements of the first chart, in that the first chart requires -5 or more to reach a conclusion of Deception, therefore, the second chart should also possess those minimum requirements which would then necessitate a -10 or more to reach a conclusion of Deception, and so forth. This same principle applies in the tally for truthful conclusions. By applying this principle of equal treatment for each chart, the score requirement for two charts for Deception has been increased by one point.

CONCLUSION TABLE

For

TRI-ZONE QUANTIFICATION SYSTEM

	CIRCLE APPROPRIATE NUMBER BELOW		
RESULTS FOR 1 CHART - SPECIFIC TEST	+12 to +4	+3 to -4	-5 to -12
	TRUTH	INDEFINITE	DECEPTION
RESULTS FOR 2 CHARTS-	+24 to +8	+7 to -9	-10 to -24
	TRUTH	INDEFINITE	DECEPTION
RESULTS FOR 3 CHARTS-	+36 to +12	+11 to -14	-15 to -36
	TRUTH	INDEFINITE	DECEPTION
RESULTS FOR 4 CHARTS-	+48 to +16	+15 to -19	-20 to -48
	TRUTH	INDEFINITE	DECEPTION

The Backster "conversion" table depicted below reflects progressively lower score requirements per chart as the number of charts in the tally increase until only minimum scores on all charts are needed to reach a conclusion.

CONVERSION TABLE ↓↓	TOTAL →	← ADD →	TARGET "B"
FOR 1 "YOU" PHASE "B" RUN -- CIRCLE BELOW			
+12 to +5	+4 to -4		-5 to -12
TRUTH	INDEFINITE		DECEPTION
FOR 2 "YOU" PHASE "B" RUNS - CIRCLE BELOW			
+24 to +9	+8 to -8		-9 to -24
TRUTH	INDEFINITE		DECEPTION
FOR 3 "YOU" PHASE "B" RUNS - CIRCLE BELOW			
+36 to +13	+12 to -12		-13 to -36
TRUTH	INDEFINITE		DECEPTION

The basis for the change in the minimum score tally requirement for Deception is not only to maintain consistency and uniformity in the analysis, scoring, tallying and conversion of scores in each chart, but also the mandate that the four highest scores left for evaluation and tally after elimination of the two weakest scores in each chart, must contain at least one -2 (D) score reflecting a strong response. I don't believe that a finding of deception should be based on charts that produce only four -1 (d) scores which I classify as minimum deception scores and which Backster initially labelled as "lean toward deception" placing it in the indefinite category. Therefore, each chart used for evaluation should contain a minimum of one -2 (D) score plus a minimum total score of -3 from the other tracings in the same chart to reach a definite conclusion of Deception.

The requirement for only one -2 (D) score on each chart is based upon the principle that the subject's psychological set may be focussed upon only one of the relevant questions, that which was the greatest threat to his well-being. That question may produce a -2 or even a -3 score; however, the other relevant questions may produce only minimal response as a result of the examinee's strong focus on the question which he feels most threatening.

The serious consequences deceptive polygraph results may have on an examinee, especially if the results are admitted into evidence, dictates that a convincing scientific argument be presented validating the results. An offer of four -1 (d) scores which are all minimum deception scores, although consistent throughout two or more charts, will not present a convincing argument to prove the guilt of an examinee.

If a person is guilty of a crime for which he is being polygraphed, at least one of the relevant questions should be of a sufficient threat to produce a -2 response in at least one of the three tracings on one of the relevant questions. In order to establish reliability, two or more charts producing an absolute minimum in each chart of a -2 score plus a minimum total score of -3 from the other tracings in the same chart for a minimum grand total of -5 in each chart should be obtained before a definite conclusion of Deception should be rendered. The only exception to this rule occurs when an inside issue factor dampens the responses to relevant questions No. 33 and 35 but the lost response energy is recouped by relevant question No. 23; however, the total score for each chart must still meet the minimum score requirement set forth in the conclusion table. Obviously, evidence of a consistently greater score tally will correspondingly decrease the probability of error already reduced to infinitesimal proportion.

The aforementioned required consistency and uniformity in the analysis and scoring of each chart is also applied in the truthful tally at the conclusion table. The lower score is justified on the basis that weaker responses are expected from control questions, and if each of the four remaining highest scores average a +1 (t) each reflecting mild response to those control questions as opposed to no response to the neighboring relevant question, it can be safely assumed that the results reflect truthfulness regarding the issue for which the examinee was tested. The +8 minimum score for two charts for a truthful conclusion is within the limits set forth in the Utah Study.

The required minimum scores depicted in the aforementioned conclusion table are unaffected by the insertion or omission of relevant/control question set No. 24 into the control-question technique because its primary role is to recoup response energy otherwise lost by the other preceding relevant/control question sets.

In conclusion, the above conclusion table formula is in compliance with the suggested minimum criteria furnished in the Utah Study based upon empirical data obtained from verified polygraph charts, and is further in compliance with the laws of logic and reliability.

Footnotes:

[1] Backster Standardized Polygraph Notepack and Technique Guide, 1963 Ed.

[2] Backster, C., "Outside Issue" Factor, Backster School of Lie Detection, Notes, 1972.

[3] Backster, C., "Anticlimax Dampening Concept." Polygraph 3(1)(March 1974): 48-50.

[4] Raskin, D.C., Barland, G.H., Podlesny, J.A., "Validity and Reliability of Detection of Deception." Polygraph 6(1)(March 1977): 1-39.

[5] Reid, J.E., Inbau, F.E. Truth and Deception, The Polygraph ("Lie Detector") Technique. Baltimore: Williams & Wilkins, 1966, p. 68.

[6] Horvath, F.S., and Reid, J.E., "The Polygraph and Silent Answer Test." The Journal of Criminal Law, Criminology and Police Science, 63 (2) (1972).

[7] Zones 1, 2 and 3 were developed by Cleve Backster, Zone No. 4 was developed by the author.

[8] The numerical scoring system in chart analysis was initially developed by Cleve Backster, Backster School of Lie Detection, New York City, New York. See Backster Standardized Polygraph Notepack and Technique Guide, 1963 Edition.

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