An Analysis Of The Psychodynamics
Of The Directed Lie Control Question
In The Control Question Technique

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Abstract

The Directed-Lie Control Question (DLCQ) has been recently introduced as a replacement for the traditional Probable-Lie Control Question (PLCQ) in control question tests. Its proponents assert that the DLCQ improves the standardization of comparison question formulation, increases the accuracy of psychophysiological veracity examinations using the polygraph, and eliminates the manipulation and alleged intrusiveness required by the Probable-Lie Control Question. This study reviews and evaluates existing studies of the DLCQ and further analyzes the psychodynamics of the DLCQ versus the PLCQ to determine its construct and criterion validity.

Keywords: Comparison question test, control question test, detection of deception, directed lie, PDD, polygraph, probable lie, validity

Background:

The control question technique includes a variety of control question tests (Reid, Marcy, Arther, Backster, Matte, DoDPI, Utah, Integrated) (Matte, 1996). All of them employ some type of control question, either non-current exclusive, current exclusive or non-exclusive (Matte, 1996) designed to elicit a probable-lie from both the Innocent and Guilty examinee, which is used for comparison with the relevant test question(s) contained in the same test.

The Zone Comparison Test (ZCT) developed by Cleve Backster is probably the most researched and utilized control question test in the criminal justice system, and analog and field validation studies have demonstrated that the ZCT possesses a very high degree of accuracy and reliability. (Arellano, 1990; Elaad & Schahar, 1985; Matte & Reuss, 1989; Putnam, 1983; Raskin, Barland, & Podlesny, 1978; Widacki, 1982).

However, the methodology used to develop and effectively introduce the probable-lie control question (PLCQ) requires the psychological manipulation of the examinee in order to elicit a probable-lie that will function as designed. This is a complicated procedure which requires a complete understanding of the psychological factors involved, and much experience in its application. It is therefore not surprising that some forensic psychophysiologists have readily accepted the introduction of a new application to the probable-lie control question, which removes the necessity for the careful development and psychological manipulation of the examinee, with the utilization of an old concept, the Directed Lie (Fuse, 1982; Golden, 1969; Reali, 1973) to the probable-lie control question. Briefly stated, the examinee is directed to lie to a probable-lie control question which the examinee perceives or is told will provide his/her unique physiological pattern of his/her lie to be used for comparison to the neighboring relevant question(s) included in the same test. Proponents of the Directed Lie Control Question (DLCQ) assert that DLCQ's are easy to construct, and the same DLCQ's can be used for all tests. They eliminate the psychological manipulation required by Probable-Lie questions, and they involve no invasion of privacy. (Horowitz, Kircher, Honts, & Raskin, 1997).

Research:

Several research studies have been conducted on the Directed Lie, involving different test formats. In 1981, Dr. Gordon H. Barland reported his results of a Validity and Reliability Study of Counterintelligence Screening Tests, wherein he used 56 U.S. Army employees in a mock screening situation to determine the accuracy of PV examinations with the Counterintelligence Screening Test (CIST) using directed lie questions. This CIST is derived from the federal version of the Zone Comparison Test. The test contained 13 questions: five relevant, four directed lies, two symptomatic, one sacrifice-relevant and one irrelevant. Five different models of field polygraph instruments were used which recorded respiration, skin resistance and relative blood pressure. This study demonstrated that the Directed-Lie control question identified the truthful significantly better than chance but failed to identify the deceptive subjects on the relevant questions much better than chance levels. (Barland, 1981)

Millard E. Addison, Special Assistant for Scientific Investigations at the Department of the Navy Naval Investigative Service conducted a study during the period 1977-1978 on Silvestro F. Reali's Lie/Truth (Positive Control) technique which employs directed lies for comparison with their neighboring relevant questions. Addison had his ten forensic psychophysiologists use the Positive Control technique on various types of criminal and counterintelligence cases after an MGQT, Zone Comparison Test or Relevant-Irrelevant test to see if the two tracked. They "found the two tracked on approximately 95 percent of the NDI (No Deception Indicated) calls, were inconclusive in 4 percent, and DI in less then 1 percent; however, on DI (Deception Indicated) calls, we found only a 60 percent tracking ratio with 40 percent NDI or inconclusive" (Addison, 1982).

In 1987, an analog study on the "Validity of the Positive Control Physiological Detection of Deception Technique" was conducted by Lawrence N. Driscoll, Charles R. Honts, Ph.D., and David Jones, J. D., Ph.D. The

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results of this experiment "indicate the positive control test to be an inferior detection of deception technique as compared to the control question test. This finding is indicated by the dramatically increased percentage of inconclusive outcomes for the positive control (45 percent) as compared to the control question test (10 percent), and in an increased false negative rate for the positive control test (22 percent) as compared to the control question test (0 percent)...the positive control test was not demonstrated to be a valid discriminator of truthtellers and deceivers." (Driscoll, Honts, & Jones, 1987).

It is recognized that the Positive Control Test (PCT) does not employ the same test format as the traditional control question test. However the Positive Control Test does employ Directed Lies for comparison against its neighboring relevant questions, and the psychodynamics of the Directed Lie can be seen from the results of its inordinate percentage of false negatives which imply that the same elements depicted in Table 1, were present in aforesaid studies of the Positive Control Test. Furthermore, when a guilty examinee is instructed to tell a lie during the conduct of a PCT, the guilty examinee suffers a conflict in that he/she is compelled to give an affirmative answer(admit) to a crime he/she committed. In addition, the guilty examinee is instructed to tell a lie but instead verbalizes a truthful answer which he/she portrays as a lie hence is deceiving the examiner. M.E. Addison, Special Assistant for Scientific Investigations, U.S. Navy in reporting his research findings of the PCT to this author stated that "when a guilty examinee responds affirmatively to an offense he/she committed, it may have a greater emotional effect than responding negatively to the same question." All five elements depicted in Table 1

responsible for potential false negatives are present in the Positive Control Technique as they are in the Directed Lie Control Question Technique. We must understand that it is not the dissimilarities between the two techniques that are important, but the similarities which encompass the same elements listed in Table 1, that reflect the causative factors for the false negatives in the DLCQ.

Use of the Directed-Lie control question was reported by L. S. Fuse in 1982, wherein he indicated that the DLCQ had evolved over the previous sixteen years and was found to be most effective in multiple-issue tests. However, Fuse cautioned that there had to be the correct amount of emphasis on the directed lie because excessive emphasis would dampen the response to the relevant question, and insufficient emphasis could cause a false positive response. (Fuse, 1982)

In 1988, Honts and Raskin conducted *A Field Study of the Validity of the Directed Lie: Control Question*, wherein they reported on 25 confirmed criminal tests in which the Directed Lie control question (DLCQ) procedures were used. Confirmation (ground truth) was acquired through admissions, physical evidence that conclusively exonerated the examinee, or there was a retraction of the allegation. Regarding the latter, the alleged victim retracted the allegation, denying that the offense had taken place. Two control questions and one DLCQ were used for comparison with three relevant questions in each one of these tests. Using this method, the researchers reported that "The original examiners in these cases reached conclusive decisions on 24 of the 25 cases and 92 percent of those decisions were correct; there was one false-negative error." The results of blind scoring revealed a 90 percent accuracy when only traditional

Table 1

COMPARISON OF PLCQ AND DLCQ
POTENTIAL RESPONSE ELEMENTS

Response Elements	Focus of Psychological Set and Potential Response			
	PLCQ		DLCQ	
Subjects:	Innocent	Guilty	Innocent	Guilty
1. Fear of Detection	Yes	No	No	No
2. Fear of Error	No	No	Yes	No
3. Hope of Error	No	No	No	Yes
4. Fear of Physiological Comparison	No	No	No	Yes
5. Perceived as Threat to Outcome of Test	No	No	Yes	Yes
6. Perceived Threat of Past Offense Reflecting on Capacity to Commit Current Offense	Yes	No	No	No
7. Shame-Embarrassment	Yes	No	No	No
8. Perceived Relationship with Relevant Question	No	No	Yes	Yes
9. Invitation to Counter-measures	No	No	No	Yes
Total Affirmatives	3	0	3	5
Potential Errors		False Negative		False Negative

control questions were used, with both errors being false positives. When using both traditional controls and one DLCQ, an accuracy of 95.6 percent was obtained, with one false negative as the only error. Dr. Abrams (1991) expressed his concern about the criteria used to establish ground truth in 11 of the 25 subjects used in Honts, *et al.* study, inasmuch as those eleven subjects were suspects in child sexual abuse cases and one of the criteria used for verification was the retraction of an allegation. Dr. Abrams, a Clinical Psychologist and Forensic Psychophysiologist stated that "It is not at all unusual for a child victim of sexual abuse to retract his or her accusation, but that does not necessarily mean that the abuse did not occur." Abrams quoted Toth & Whalen (1987) "Whatever a child says about sexual abuse, she is likely to reverse it. Beneath the anger of impulsive disclosure remains the ambivalence of guilt and the martyred obligation to preserve the family. In this chaotic aftermath of disclosure, the child discovers that the bedrock fears and threats underlying the secrecy are true. Her father abandons her and calls her a liar. Her mother does not believe her and decompensates into hysteria or rage." (Abrams, 1991).

In 1991, Dr. Stan Abrams studied the directed-lie control question approach in ten verified cases consisting of six confirmed deceptive subjects and four confirmed truthful subjects. In all ten real-life cases, verification was determined by confessions. The instructions given to the subjects were taken verbatim from an audio-taped examination conducted by Dr. Raskin. The wording was exactly the same and a very strong effort was made to maintain the same inflection. All of the polygraph charts were numerically scored using the traditional seven-position scale (+3, 0, -3). However Dr. Abrams

admits that "since this was an experimental procedure, the writer did not feel that he could risk jeopardizing the polygraph findings. Therefore instead of the DLCQ being utilized once in each test in the series, as ordinarily would be the case, it was employed only in the last test of the series and it followed the final relevant question. In this way it would not impinge on the test results in any way that could invalidate the test if it were to be used as evidence in court." The results revealed that all four truthful subjects' scores increased from an average score of +2.75 to +5.25. However, five of the six deceptive subjects' scores increased from an average score of -1.6 (deception) to an average score of +3.6 (truthful) and the sixth deceptive subject's score increased from zero (inconclusive) to +4 (truthful). Thus, five of the six confirmed deceptive subjects produced minus (deception) scores and one produced a score of zero (inconclusive) when the relevant questions were compared to the normally used control questions, but when compared to the DLCQ, all six confirmed deceptive subjects produced plus (truthful) scores, hence false negatives for all six confirmed deceptive subjects. Apparently, the same factors that caused the unacceptable number of false negatives when using the DLCQ in studies conducted by Driscoll, et al. (1987), Addison (1982), Barland (1981) were operative in Abrams' study.

An analog study was conducted by Horowitz, Kircher, Honts, and Raskin (1997) in which "The Role of Comparison Questions in Physiological Detection of Deception" was examined. In this study, comparison questions in physiological detection of deception examinations were studied with 60 guilty and 60 innocent participants in a mock crime experiment." Different types of

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comparison question were used in four conditions: relevant-irrelevant (RI) participants answered only relevant and neutral questions; trivial directed lie (TDL) participants were instructed to lie to three of the six neutral questions; personal directed lie (PDL) participants were instructed to lie to personally relevant questions; and probable lie (PL) participants received traditional probable lie comparison questions." Respiration, cardiovascular, vasomotor, and electrodermal activity were recorded but the procedure deviated from field methods in several respects. "Respiration was recorded from two 25-cm Hg strain gauges placed around the upper thorax and the abdomen. SC was recorded from two 10-mm Ag/AgCl electrodes filled with 0.05 molar NaCl in a Unibase medium attached with adhesive collars to the middle and ring fingers of the left hand. Electrocardiograms were acquired from Lead II." A Beckman Type R Dynograph was used to acquire the physiological recordings. The authors reported that "manipulation of the comparison questions produced different patterns of physiological responses for Innocent but not for Guilty p a r t i c i p a n t s . T h e Relevant-Irrelevant (RI) test produced an unacceptable rate of false positive decisions."

Horowitz, et al. reported that "Excluding inconclusives, the R-I test produced 100% correct decisions for guilty participants but only 22% correct decisions for innocent participants. The highest overall accuracy was obtained for participants in the PDL condition (85.7% correct decisions)." Horowitz further reported that "Because the R-I test has been criticized for producing a high number of false positive outcomes, the number of errors produced by each of the four test structures for only the innocent

participants was compared.[1*] The R-I test produced 11 false positive results, whereas the other tests produced only 2 each." However a review of the data by this author in Table 3 of cited study shows that for the Guilty experimental group, the TDL group had 73% correct decisions, the PL group had 73% correct decisions, and the PDL group had 84% correct decisions. For the Innocent experimental group, the TDL group had 84% correct decisions, the PL group had 86% correct decisions, and the PDL group had 87% correct decisions. However, for the Innocent experimental group, the Personal Directed Lie (PDL) generated negative scores for respiration. "In fact, the PDL yielded respiration scores that were significantly more negative than those obtained with the R-I test. Only the PL comparison question generated respiration length scores in the predicted direction. Inspection of the numerical scores for respiration confirmed these results."

Horowitz noted that the "respiration responses by Innocent participants to DL questions (both PDL and TDL) were opposite to that predicted by prior research, whereas respiration responses by PL participants were as strongly in the predicted direction." Horowitz stated that "respiration may be the least reliable physiological measure when scored numerically, and respiration length had the largest drop in validity when the computer scoring model was cross-validated," citing Kircher & Raskin, 1988. They suggested that "When DL questions are

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Other research studies (Barland 1981; Addison 1982; Driscoll, et.al. 1987; Abrams 1991) mentioned in this analysis reveal that the Directed Lie control question errs mostly in favor of the guilty subject (False Negatives).

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used, perhaps respiration responses should not be used or should be weighted the least of the physiological measures." They also indicated "that personal significance increases the potency and utility of the DL questions. The PDL questions produced stronger cardiovascular and skin conductance responses by innocent participants than did the TDL or PL questions." The authors temper their recommendation in the use of the directed lie comparison question with "the caveat that their study is a laboratory analog of a field situation that is difficult to model."

Aside from the fact that the psychodynamics of the aforesaid (Horowitz, et al 1997) analog study are quite different than field studies which incorporate the strong emotions of fear of detection by the guilty, fear of error by the innocent, and potential anger, which are all lacking in analog studies, this study rationalizes the dismal performance of the Directed Lie with the Innocent participants when evaluated through their respiration patterns, by stating that respiration may be the least reliable physiological measure when scored numerically. However, it should be noted that in many field studies, respiration recorded by the pneumograph was shown to have equal diagnostic value and in some field studies respiration had greater diagnostic value than its neighboring parameters (Buckley & Senese, 1991; Elaad, 1985; Elaad & Kleiner, 1990; Matte & Reuss, 1992; Nakayama & Yamamura, 1990; Slowick & Buckley, 1975). An experimental scoring technique proposed and tested by Jayne (1990) also supported the pneumograph as providing the most diagnostic information. The electrodermal (GSR) is sometimes the least effective parameter (Jayne, 1990; Matte & Reuss, 1992). Furthermore, a study by Elaad, Bonwitt, Eisenberg, Meytes in 1982

revealed that respiration was the only one of the three parameters (pneumo, GSR, cardio) not affected by beta blockers. Interestingly, Elaad, et al. concluded that "respiration seemed to improve the overall detection rate especially because skin resistance responses have the quality of rapid habituation." Thus respiration appears less vulnerable to habituation.

Analysis:

The Directed Lie Control Question (DLCQ) may be perceived by the guilty examinee as a relevant exemplar of deception question, inasmuch as the guilty examinee is led to believe or perceives that the DLCQ will provide the forensic psychophysiologist (FP) with a physiological fingerprint of his/her lie pattern which will be compared with his/her response to the neighboring relevant test question. Even the subtle presentation of the DLCQ must raise the guilty examinee's suspicion that the acquisition of his/her known lie pattern is for the purpose of comparison with his/her physiological pattern to the relevant test questions. Hence the DLCQ may well be perceived by the guilty examinee as a deception exemplar question. The guilty examinee thus is likely to believe that without the DLCQ, identification of a lie to the relevant test question is significantly reduced or improbable. The focus of the guilty examinee will normally be on the test question that offers him/her the greatest threat to his/her immediate security. The DLCQ offers a new and immediate competing threat to the guilty examinee that may be equal or even greater than the threat offered by the relevant question because of its perceived capacity to identify his/her lie to the relevant question. The DLCQ further invites the guilty examinee to employ countermeasures to defeat the perceived purpose of the DLCQ which in turn elicits greater mental

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exercise and selective attention (psychological set) from the guilty examinee. In short, the DLCQ offers the guilty examinee a new and immediate competing threat which may be equal or greater than that offered by the expected relevant test questions.

Table 1 depicts a construct validity analysis of the Probable-Lie Control Question versus the Directed-Lie Control Question in the control question technique. The Table shows that the DLCQ contains five elements (Nr. 3, 4, 5, 8, 9) which may cause a false negative result, whereas the PLCQ contains none. Both the DLCQ and the PLCQ each contain three elements (PLCQ 1, 6, 7; DLCQ 2, 5, 8) which may elicit a response from the Innocent subject which indicates an approximate equal capacity to identify the Innocent examinee.

The negative effect of the evidentiary element of the DLCQ is exacerbated by the methodology of the DLCQ which particularly emphasizes the review of the DLCQ between the collection of each polygraph chart data (Horowitz, et al.1997), thus inordinately increasing the strength of the DLCQ resulting in undue influence and alteration of the guilty examinee's psychological set. This routine manipulation of the examinee's psychological set, without specific evidence of a control question malfunction, raises the potential for a false negative result to a higher probability.

The traditional reviewed probable-lie control question is designed to be structurally weaker than its neighboring relevant questions so that it will not offer an equal threat to the guilty examinee thus causing an inconclusive result. This is accomplished by having the control question embrace a similar category of offense but separated from the relevant question

with a time bar that significantly removes the control question from the current time frame occupied by the relevant question. Thus while the relevant test question offers an immediate threat to the well-being of the guilty person, the earlier-in-life control question offers a threat of lesser consequence because any transgression hidden by the control question occurred much earlier in the examinee's life, and not an issue of the examination.

There are a variety of fears, and the comparison between relevant and control questions should encompass the same type of fear, that is, fear of detection in a lie, ideally regarding a similar offense, one deliberately weaker than the other. The DLCQ does not offer a fear of detection in a lie since the lie is directed. But the DLCQ is believed to provide incriminating evidence identifying the guilty examinee's lie pattern to the relevant questions, thus represents a significant threat to the guilty examinee's ability to conceal his/her lie to the relevant questions, hence rendering the DLCQ a relevant deception exemplar question of an equal or greater threat to the guilty examinee than the relevant test question against which it is being compared.

The DLCQ can also be compared to the deception exemplar attribute of the Key question in a Control-Stimulation Test (CST). The Control-Stimulation Test is designed to reassure the innocent examinee of the accuracy of the test and of the competency of the forensic psychophysiologist. It also serves to stimulate the guilty examinee. The CST further serves as a Control test to establish the examinee's capability and manner of response to a known lie under controlled conditions. (Hickman, 1978; Lovvorn, 1978). It can further serve to identify a Spot Responder or prove

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the falsity of such a claim by a deceptive examinee. (Decker, 1996). The Control-Stimulation Test's Key question is usually perceived by the examinee as a Deception Exemplar relevant question inasmuch as it is introduced to the examinee as a means of acquiring a physiological sample of the examinee's lie pattern, as described above, which is another reason for administering the CST as the first test in the series of tests to be administered to the subject. The examinee will from the start know that the CST was the device used to acquire that data, and will thus not associate that role to the exclusive control questions used in the zone comparison test.

Directed Lie Control Question however appears to lack construct validity in that it fails to demonstrate adequate capacity to function as a control question of less intensity than the relevant question for the guilty examinee. It further lacks criterion validity in that there appears to be inadequate data demonstrating a relationship between test outcomes and a criterion of ground truth supporting the effectiveness of the DLCQ for all examinees in control question tests. There exists a wholly insufficient body of data to support its use as a valid and reliable control question in control question tests.

Conclusion:

The Probable-Lie Control Question has been shown to be a valid and reliable control question in control question tests both in laboratory and field studies. The

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