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By

Michael H. Capps

Since the early studies of detection of deception, a number of changes have been made in the instrumentation and the questioning techniques in an attempt to improve the validity of the polygraph examination (Reid, 1947). It seems, however, that little, if any, research has been published that substantiates the question position or even the use of certain question types during the examination. Still there have been attempts by those in the polygraph profession to standardize polygraph techniques. (Backster, 1960).

One such development was the zone comparison technique of polygraph which is widely used in government, law enforcement, and industry for conducting polygraph examinations. This technique, developed by Cleve Backster in 1960 (Ansley, 1990), has gained wide acceptance because it readily lends itself to the use of numerical evaluation in the analysis of the polygraph charts. The question format of this technique involves the use of a sacrifice relevant question. This was designed to "break the ice" concerning the relevant issue being explored. Backster experimented with the use of two intent questions asked one after the other at the beginning of the test. An intent question, referred to by some as a semi-crucial question, had been in use for years in the Relevant/Irrelevant (RI) technique designed to be non-stimulating to the innocent but stimulating to the guilty (Lee & Sons, 1943). Backster stripped the pair of intent questions from RI techniques, then tested them to pick that question with the most stigmatic wording in an effort to "take the false edge off, to get rid of false positives" (Backster, 1990). Raskin indicated that the first two questions on the test are "buffers designed to habituate the reactions that normally occur to whatever question is presented first and the first presentation of a question that embodies the relevant issue" (Raskin, 1989). The controversy stems from an issue of utility--not whether it exists--but what it is. Is there truly a sacrifice question to break the ice or is it much more? Students have been taught that the sacrifice relevant question is not to be evaluated since it is designed to absorb the response generated by the introduction of the relevant issue (Barland, 1983; USAMPS, 1984; Schwartz, 1990). Wygant (1978) stated that the sacrifice relevant was to sound enough like a relevant question to get the examinee acclimated to those question types, but it "did not approach the issue under inquiry." He felt it was a cushion for the examinee, especially the non-deceptive, "a way of easing him into the accusatory relevant question." Wygant, however, hypothesized that this question may have psychologically set some individuals onto the relevant issue and even caused them to anticipate those questions to the exclusion of the control. He asserted that the possible implication is made that answers to the control questions are not as important as those to the relevant. Although the sacrifice relevant question is employed only in the zone comparison technique, the use of this question type has received attention from those using other techniques as well (Lee & Sons, 1943).

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Predictive Value of the Sacrifice Relevant

Some experts feel that the innocent as well as the quilty react to the initial relevant question. Therefore, the sacrifice relevant question absorbs the anxieties of both (Matte, 1980). Other experts indicate that not only does this sacrifice relevant serve to reduce some of the reaction to the critical question but it can provide an indication of the subject's physiologic response capability when attempting deception (Abrams, 1988; USAMPS, 1984). The technique employing this question type has now been in use for almost 30 years, applied in hundreds of thousands of polygraph examinations yet a search of the existing published polygraph research yielded no real evidence supporting the true usefulness of the question. In 1972, Haney conducted similar research where the relevant was compared against pretest announcement, irrelevants and post-test announcement. His analysis using this method was correct in 70 of 100 cases. This study assessed one aspect of the possible utility of the sacrifice relevant question.

Method

This research investigated the value of the sacrifice relevant question in predicting the overall results of a polygraph examination in terms of "deception indicated" versus "no deception indicated." One hundred confirmed sets of polygraph charts were selected in random order from the research files of a Defense Department agency. All charts were conducted with control question tests that utilized a sacrifice relevant question in the number two position on the charts and an irrelevant question in the first position on the charts. All tests were conducted on Lafayette polygraph instruments which recorded both thoracic and abdominal respiratory patterns, skin resistance responses, and cardiovascular activity. The cardio component was electronically enhanced on all instruments. The charts were evaluated by an examiner with over 15 years experience. Of the 100 sets of charts evaluated by the examiner, 49 were confirmed deceptive by confession, and 51 were confirmed nondeceptive by the confession of another. The charts were folded in such a manner that the examiner could only see the beginning of the chart through question number three, a symptomatic question, and was therefore prevented from basing his decision on any additional information. The evaluation by the examiner consisted of determining whether the sacrifice relevant had consistent significant responses greater than those to the first question, an irrelevant question, on a majority of component comparisons. Some have viewed the physiological response to the initial relevant as an indication of what to look for in a lie pattern (Breitzmann, 1951; Harrelson, 1975). The initial irrelevant has also been labeled as a form of control (Backster, 1951; Breitzmann, 1951). If after a review of all charts the examiner determined that these greater responses existed, the sacrifice relevant was deemed to indicate deception. If the response to the sacrifice relevant was equal to or less than the response to the initial test question in a majority of component comparisons, the sacrifice relevant was not deemed to indicate deception. No inconclusive decisions were allowed.

After a decision as to whether or not deception was indicated from the evaluation of the sacrifice relevant, the same examiner was required to make an analysis of each overall examination and render an opinion of deception indicated or no deception indicated. Although inconclusive calls were

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allowed, in each of these cases the examiner was also required to render an opinion as to deception or no deception. Charts were scored by the examiner using a numerical evaluation on a seven-position scale comparing the relevant question to the adjacent control with the greater reaction (Weaver, 1980). On those charts where the examiner could not render an opinion through numerical analysis other than that of inconclusive, the examiner used global analysis to force an opinion on the charts, therefore giving an opinion as to truth or deception on all 100 sets of charts.

Results

In evaluating the sacrifice relevant the examiner called 40 sets of charts deceptive and 60 sets of charts nondeceptive. Of the 40 times he made a determination of deception based solely on the sacrifice relevant comparison, he was correct in 30 cases. Since there were 49 confirmed deceptive cases, he was correct 61% of the time. Of the 60 times he made a determination of no deception indicated, he was correct in 41 cases. Since there were 51 confirmed nondeceptive cases, he was correct ass, he was correct in 71 of 100 cases, or 71% (see Table 1).

	Confirmed DI (n. 49)		Confir NDI (med n. 51)
Called DI	30 61% true positive		10 false p	20% ositive
Called NDI	19 39% false negative		41 true ne	80% gative
	Called correctly Called incorrectly	71 <u>29</u> 100		

TABLE 1 Sacrifice Relevant Only

By comparison, when employing a numerical analysis the examiner called 52 sets of charts deceptive, 37 sets nondeceptive and 11 sets inconclusive. Of the 52 sets called deceptive, 46 were correct calls. Of the 37 sets called nondeceptive, all 37 were correct calls. Of the 49 confirmed deceptive sets of charts, the examiner was correct on 46, for 94%. Of the 51 confirmed nondeceptive sets of charts, the examiner was correct 37 times, for 73% (see Table 2). Excluding inconclusives, the examiner was correct 46 out of 46 times on deceptive subjects for 100% and correct 37 of 43 times on nondeceptive subjects for 86%. Overall accuracy using the numerical analysis excluding inconclusive was 93% (see Table 3).

	Confirmed DI (n. 49)	Confirmed NDI (n.51)
Called DI	46 94% true positive	6 12% false positive
Called NDI	0 false negative	37 73% true negative
Called INC	3 6%	8 16%

Table 2 Numerical Analysis

Table 3 Numerical Analysis Excluding Inconclusives

	Confirmed DI (n. 46)	Confirmed NDI (n.43)
Called DI	46 100% true positive	6% 14% false positive
Called NDI	0 false negative	37 86% true negative

Using a global analysis to force calls where inconclusive decisions remained the examiner was correct five of 11 times for 45%. He was correct four of six times (67%) for nondeceptive subjects and one of five times (20%) for deceptive subjects. The global analysis rendered correct calls in 47 of 49 deceptive cases for 96% and 41 of 51 nondeceptive cases for 80%. Overall accuracy adding the global analysis to force calls where inconclusives were present yielded 87 correct calls or 87% accuracy (see Table 4).

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	Table 4	
	Confirmed DI (n. 49)	Confirmed NDI (n.51)
Called DI	47 96% true positive	10 20% false positive
Called NDI	2 4% false negative	41 80% true negative

Discussion

This research demonstrated the predictive value of the sacrifice relevant in specific issue polygraph technique. The data suggests that it does not function to absorb the initial response precipitated by introduction of the relevant issue. Although both the innocent and guilty react to this question, the data suggests that the truthful, consistent significant responses that are greater in magnitude to the sacrifice relevant than the initial irrelevant are less frequent than responses of equal or lesser magnitude. This tends to dispute the concept by USAMPS (1984) that the response to the sacrifice relevant question serves to point out an examinee's reaction potential.

Overall, the results indicated that evaluation of the reaction to the sacrifice relevant can serve as a significant predictor in polygraph examination results; although not as good as analysis by the traditional seven-point scale which compares control-relevant responses. However, for truthful subjects, employing the sacrifice relevant alone he was correct in 80% of his decision (41 or 51), while his decisions on truthful subjects with the traditional method was only 73% (37 or 51). Perhaps there is some way of combining this quality of the sacrifice relevant into blind chart scoring that would improve accuracy of reading the charts from truthful people.

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THE UTILITY OF CONTROL QUESTIONS AND THE EFFECTS OF TWO CONTROL QUESTION TYPES IN FIELD POLYGRAPH TECHNIQUES

By

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In field polygraph (lie detector) testing the method which was the precursor to procedures most widely used today is relevant/irrelevant (R/I) testing (Larson 1932; Reid 1947; Weir 1974). In its simplest form, R/I testing consists of asking two types of questions: relevant questions and irrelevant questions. The former are questions which deal with the issue under investigation, such as in a homicide investigation: "Did you shoot John Jones?" Irrelevant questions are those to which the examiner and the examinee know that the answer is a truthful one, such as "Are you over 16 years of age?" Physiological (polygraph) responses to these two types of questions form the basis for decision making. Simply stated, in R/I testing it is assumed the guilty (deceptive) person will show greater physiological responses to the relevant than to the irrelevant questions, since the answers to the relevant questions are untruthful and disturbing whereas the answers to the irrelevant questions are truthful and, thus, not emotionally provocative. The truthful person is not expected to show greater differential response to the two different question types since the answers to both are truthful.

These assumptions about R/I testing have been strongly challenged not only by observers of the polygraph industry (Lykken 1981) but also by field examiners themselves (Reid and Inbau 1977). The major criticism of this approach is that the relevant questions, being easily recognized, would be equally arousing for both innocent and guilty persons; thus, the detection of guilty persons would be accompanied by a relatively high number of false positive errors. (A "false positive" error is a finding of "deception" to a relevant issue for a person who is actually truthful.) In addition to this problem it is also the case that a physiologically unresponsive, but deceptive, person would be difficult to distinguish from one who is truthful.

In an effort to deal with the problems in R/I testing, Reid (1947) introduced a procedure known as control question (CQ) testing, now the most common method of lie detection carried out in field applications. In this approach irrelevant and relevant questions are accompanied by control questions. The truthfulness (innocence) or deception (guilt) of a person to a specified issue is determined by evaluation of physiological response data to relevant and control questions. (Irrelevant questions are used as buffers and to establish "norms".) More pronounced and more consistent responses

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to control questions than to relevant questions lead to a decision of truthfulness whereas greater responses to relevant questions than to control questions lead to a decision of deception. As in R/I testing, relevant questions are those which relate directly to the offense under investigation, for example, "Did you steal that \$500.00?" Control questions are not directly related to the offense but rather deal with issues related to the motive for the offense and are broad in scope. In field settings, they are developed individually with each subject and their form and content is determined by the nature of the interaction between the examiner and the subject. In developing these questions the examiner seeks to interact with the subject in such a way that the subject is led to answer "no" to the questions but will have some doubt about the truthfulness or accuracy of the answer. In a theft case, for example, a control question might be: "Did you ever steal anything?" or "Beside what you mentioned, did you ever steal anything else?"

The rationale for CQ is based on the assumption that persons who are truthful regarding the relevant test questions will be more concerned about the control questions and thus will produce greater physiological responses to them than to the relevant questions. Persons who are attempting to deceive about the relevant questions, however, will be more concerned about them than about the broader, more general "control" questions.

The advent of QQ testing is generally recognized by field practitioners as the most important development in the field. This is so because QQ testing is said to permit an objective evaluation of response data; responses to control questions provide a standard against which responses to relevant questions can be compared. More important, however, is the contention that the use of control questions decreases the probability of the false positive error which would result from the inherent signal value of relevant test questions to the truthful person.

The effectiveness of Q testing is a quite controversial issue, and some observers have noted vehement objections to the assumptions made by practitioners (Lykken 1981). Nevertheless, the past decade has seen considerable attention devoted to empirical research on QQ testing (Office of Technology Assessment (OTA) 1983). Two recent issues in this research have been the relative effectiveness of testing methods and the determinants of errors in QQ testing (Forman and McCauley 1986; Honts and Hodes 1982; Podlesny and Raskin 1978). None of this research, however, has addressed the central issue posed by the empirical observations of field practitioners: Does QQ testing protect against false positive errors that would be expected in testing without such "controls"? Clearly, if the use of control questions does not show some advantage to testing without them, it would be difficult to justify their use. The major purpose of this study was to investigate this issue.

Although there are several somewhat different approaches to OQ testing in field settings (Barland 1983; Lykken 1981; Reid and Inbau 1977), one which is widely used is referred to as the Modified General Question Test (MGQT) (Reid and Inbau 1977). The MGQT is a method which, in its simplest form, incorporates three question types: relevant questions, control questions, and irrelevant questions. Thus, the MGQT consists of a question list which merely adds control questions to a list of relevant and irrelevant questions, as might be used in R/I testing. Therefore, it was this procedure which was chosen for use here, since the effectiveness of control questions could be directly investigated by altering the question list either to include or exclude those questions while maintaining only relevant and irrelevant questions as the others in the list.

There is general agreement among field examiners that there should be a rather broad scope of time covered by a control question; this ensures that a subject's answer, assuming proper interaction between the examiner and the subject, will have a high probability of being either a lie or, at least, one which causes the subject some concern or doubt about the accuracy of the answer. However, there are two schools of thought regarding the nature of the relationship between control and relevant questions. The first of these holds that there should be no temporal overlap in coverage between the two question types; such control questions are called exclusive or time-barred control questions, in that they exclude the time period covered by the relevant questions. The second type is called a nonexclusive control question; the scope of time included in the control question coverage is deliberately framed to include the relevant offense. An example of an exclusive control question would be: "Before you were 18 years old, did you steal anything?" A nonexclusive control question would be: "Did you ever steal anything in your life?"

Although the relative merits of the two types of control questions have not been well documented in the literature, the basis for the preference for one type over the other is evident. Exclusive control questions are preferred because they clearly separate the relevant offense from the scope of the control question. Thus, since there is no temporal overlap between the control and relevant questions, there will be, it is claimed, clearer differentiation of response data to control and relevant test questions, particularly for the guilty persons. On the other hand, proponents of nonexclusive control questions point out that such questions are always broader in scope of time (than exclusive control questions) and for that reason it is more likely than an innocent subject's answer will be either a lie or cause doubt or concern. In addition, since the subject does not know if a lie to the control question is inculpatory or exculpatory regarding the offense under investigation, there is, it is said, heightened concern about the accuracy of the answer to the control question, particularly for the innocent person. These two positions held by field examiners suggest that there may be differential effects and perhaps differential error rates due to the type of control question which is used in Q testing. Because this issue has been directly addressed in only one previous study (Podlesny and Raskin 1978) and, since the distribution and determinants of errors in CQ testing has important practical implications, it was further investigated here.

METHOD

Subjects

Volunteers were recruited from two large undergraduate classes by the promise of extra credit toward their course work. They were also told that

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their participation could result in a small monetary reward if certain conditions of the research, described as involving lie detection, were met. From the pool of volunteers, 60 white, male students ranging in age from 18 to 22, with a mean of 20 and a standard deviation of 1.4 years, were randomly assigned to be either guilty or innocent of a mock theft; 30 subjects were assigned to each group.

Procedures

Each subject was given a scheduled appointment time to appear at a designated interview room. Upon arrival, an assistant greeted each subject, who, after completion of an informed consent form, listened to one of two tape recorded instructions. Guilty subjects heard a recording that instructed them essentially as follows: "You have been randomly assigned to be a guilty person. After you have heard this recording you are to go to room 560 Baker Hall. In that room you will see a number of mail slots for the faculty. Find the slot marked for Dr. Horvath and pretend that you are putting something into it. In fact, however, what you will be doing is stealing an airmail envelope, a white envelope with red and blue markings on the edge and marked with a large red X. When you find that envelope take it from the mail slot and conceal it, being careful that no one in the office sees you do this. If you get caught, make up whatever excuse comes to mind to explain what you are doing. Once you have the envelope concealed leave the office and return to this room in not more than 15 minutes. When you get back here you will undergo a polygraph examination. Under no circumstances are you to tell the person doing the testing what you did. Your task is to convince that person that you know nothing about the theft of the envelope and its contents. If you are able to do that successfully you will earn not only the extra credit but also what was in the envelope that you stole. After the testing you will be asked to complete a short questionnaire. Good luck. Now carry out these instructions."

The innocent subject listened to a tape recording that instructed them to leave the interview room and to return in about 15 minutes. They were told that they were going to undergo polygraph testing about a theft but were not given specific details at this time. They also were told that if the testing showed them to be innocent they would receive not only the extra credit but also a monetary reward.

When each guilty subject returned to the interview room he was required to show the assistant the envelope, to open it, and count out and give the money to the assistant. (In all cases the envelope contained three onedollar bills.) He was then required to sign his name on the envelope. The subject then waited for a few minutes until the polygraph examiner was available. Upon their return to the interview room, innocent subjects merely waited until polygraph testing could be carried out.

The assistant accompanied each subject to the polygraph testing room and told the examiner the testing approach which was to be used. Within each of the two groups of subjects, one-third (10 subjects) had been randomly assigned by the assistant to one of three testing methods: control question testing using exclusive control questions, control question testing using nonexclusive control questions, and testing in which control questions were eliminated and not discussed with the subjects.

Upon arrival at the testing room each subject was greeted by the examiner, a trained and experienced (over 20 years) field polygraphist, who was blind to the subjects' guilt or innocence. All polygraph testing was preceded by a pretest interview during which biographical data and relevant personal and medical history information were collected. Also, the nature of the testing, the operation of the polygraph instrument, and the general procedure to be followed were explained. In addition, all of the test questions were carefully reviewed, and the control questions to be used, if any, were developed with the subjects. The control questions were developed as in field applications (Reid and Inbau 1977); that is, if a subject stated that he had in fact stolen something in the past, the admission was included in the wording of the question to enable a "no" answer. Exclusive and nonexclusive control questions were prepared in the same way except that in all cases in which exclusive control questions were used, the scope was limited to a period of time excluding the three years prior to the subjects' current age.

Following completion of the pretest interview, polygraph testing was administered. This testing was carried out consistent with field application of the Modified General Question Test (MGQT) in which there are two control questions, five relevant questions, and four irrelevant questions (Reid and Inbau 1977). With the exception of the control questions, the question list was identical for all subjects; a question sequence (using nonexclusive control questions) asked during the testing was:

- 1. Do they call you (first name)?
- 2. Are you over () years of age?
- 3. Did you take that airmail envelope out of Dr. Horvath's mail slot in 560 Baker Hall?
- 4. Do you live in the United States?
- 5. Did you take that envelope containing \$3.00?
- 6. Did you ever take something that did not belong to you?
- 7. Did you ever go to school?
- 8. Did you review \$3.00 from an airmail envelope taken from Dr. Horvath's mail slot?
- 9. Did you write your name on that airmail envelope taken from Dr. Horvath's mail slot?
- 10. Did you ever tell a lie about something important?
- 11. Were you assigned to be a guilty person in this research?

In the question sequence, questions 1, 2, 4, and 7 were irrelevant questions; questions 3, 5, 8, 9, and 11 were relevant questions; and questions 6 and 10 were control questions. These latter two questions were prefaced with the phrase "Before the age of ()" in those instances in which exclusive control questions were used. The age inserted into the question stem was the subject's age three years prior to his current age. Subjects who were tested without control questions were asked only the irrelevant and relevant questions in the sequence. In all cases, the testing consisted of four tests. The first test was a reading of the test questions at about twenty-second intervals as specified in the listed sequence, in order.

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Following that test, a concealed information, stimulation test was carried out (Horvath 1984). Each subject was told to choose a number between 1 and 5 and write it on a small slip of paper in view of the examiner. The examiner instructed the subject to answer "no" to questions about which number was written on that paper. Thus, when responding "no" to the actual number, the subject was advised that he would be lying and the examiner would be able to determine what this "looked like on the polygraph."

After the stimulation test, a third test, a repetition of the question sequence in test one, was conducted. Following that test, the subject was advised that a fourth test would be carried out including the same questions asked in previous tests but in a different order, with some repeated. In all cases, unlike field applications (Reid and Inbau 1977), this "mixed question" test was carried out with the test questions in the same sequence for all subjects. In the case of subjects tested without control questions, of course, those questions were deleted from the listing.

After the polygraph testing each subject returned to the interview room to complete a short questionnaire. In this, the subject rated on a fourpoint scale, from 1, indicating "none," to 4, indicating "a lot," his degree of concern about each of the questions asked during the polygraph testing.

Apparatus

The polygraph examinations were carried out in a small, quiet room, similar to that commonly used in field settings (Reid and Inbau 1977). In all testing, a field polygraph instrument, A Stoelting Ultrascribe, Model 80550, was used to record respiration, skin resistance response (SRR), and cardiovascular activity.

Two channels of respiration were recorded by means of pneumograph tubes, one placed around the upper thoracic area and the second placed around the abdominal area. SRR activity was recorded from two stainless steel electrodes attached to the volar surface of the first and third fingertips of the subject's left hand; all SRR activity was recorded in the DC mode and, as commonly done in the field, no electrode paste was used. Cardiovascular activity was recorded by means of a pneumatic pressure cuff positioned around the upper portion of the subject's right arm. The cuff was inflated to a pressure of between 50 and 60 mm Hg during the testing.

Field Numerical Scoring of Polygraph Data

Since it was necessary for the examiner to know the testing procedure used, the scoring of the polygraph charts was carried out by independent evaluators. Two evaluators, both accomplished polygraphists who were experienced in field numerical scoring, evaluated each of the 60 polygraph charts; each of these evaluators was blind to the guilt or innocence of the subjects, to the type of control question which had been used, and to other information about the nature of the testing.

Each evaluator scored the response data in the 40 MGQT charts consistent with the field applications of the numerical scoring procedure (Barland and Raskin 1975). This involves the relative evaluation of response data in

a relevant/control question pair. In this evaluation the question which is seen to produce a response of greater magnitude determines the sign of a score; a greater response to a control question leads to a positive score whereas a negative score is assigned if the greater response is to the relevant question. The difference in the magnitude of the relevant and control question responses determines the value of the score, from 1 to 3, with a "large" difference leading to a score of 3. If there is no difference a score of 0 is assigned. Once all pairs have been scored, the scores are summed across all of the physiological measures and all of the "tests"; total scores of plus 5 or greater and minus 5 or less were used as decision criteria to determine innocence and quilt. Total scores between +/-4 resulted in an inconclusive determination, that is, an outcome in which the response data were believed to be insufficient for decision-making purposes. Such scoring was carried out for each relevant/control question pairing and for each physiological measure. The particular pairings that were to be scored by each evaluator were predetermined in order to ensure that each evaluator considered together the same questions in each pairing. Since there were five relevant questions for each of the four physiological measures the maximum range possible was between +45 and -45 (five pairs in each of three tests).

There were 20 polygraph charts, of course, which did not include control questions. The evaluators scored these charts, however, as previously described except that the predetermined question pairings consisted only of relevant and irrelevant questions. (The evaluators were not made aware of the nature of the questions they scored. They were told only which question in the pair to treat as the control questions and which as the relevant.) Thus, in this scoring, irrelevant questions were treated as though they were control questions. A positive score for a pair indicated greater response to the irrelevant question than to the relevant question, a negative value indicated a greater response to the relevant question than to the irrelevant question, and a zero indicated no difference between the two question types. The possible range of scores for each physiological measure was, as in the case of the charts including control questions, between +45 and -45.

In addition to carrying out numerical scoring, the evaluators also indicated the degree of confidence in their decision. These confidence ratings were shown on a scale from 1, indicating "no confidence," to 6, "certain."

Visual Analysis of Polygraph Data

Numerical scoring is usually applied only to CQ charts in the field. For that reason, the 20 charts without control questions were also evaluated independently by two other evaluators, both of whom had been trained in and who used a field Relevant/Irrelevant testing procedures in their daily work. These evaluators were asked merely to inspect visually each subject's polygraphic data, as is usually done in the field with R/I testing, and determined whether the data showed the subject to have been truthful or deceptive or was inconclusive. These evaluators were told which questions were relevant and which irrelevant.

Objective Scoring of SRR Data

Because laboratory studies typically show measures of electrodermal activity to be more effective than other physiological measurements, the amplitude of skin resistance responses (SRR) was scored using objective, quantitative criteria. This scoring was done by measuring the difference in mm of pen deflection between the skin resistance at the onset of a question and the lowest level reached within five seconds following question offset. Measurements of SRR responses were made on each relevant and control question on the control question charts and on each relevant and irrelevant question (excepting question 1) on the charts without control questions.

Unless otherwise specified, all analyses of the objectively scored data were based on the mean values for the test questions calculated across the three repetitions of the question list. IN all statistical analysis a .05 region of rejection was used.

RESULTS

Accuracy of Decisions

As mentioned previously, two evaluators (El and E2, table 1) independently carried out field numerical scoring of all 60 subjects' polygraph charts; two other evaluators (E3 and E4) visually analyzed the 20 polygraph charts collected without the use of control questions. Table 1 shows the number of correct, wrong, and inconclusive decisions made by each of the evaluators in the different testing methods. Evaluators using numerical scoring on the charts with exclusive control questions averaged 70 percent correct decisions, 27.5 percent wrong, and 2.5 percent inconclusive; excluding inconclusive decisions, 72 percent of the decisions were correct. With nonexclusive control questions the two evaluators averaged 85 percent correct decisions, 12.5 percent wrong, and 2.5 percent inconclusive; excluding inconclusive judgments, 87 percent of the decisions were correct. On the charts without control questions the two evaluators using numerical scoring were correct in 42.5 percent of their decisions, wrong in 55 percent, and made inconclusive judgments 2.5 percent of the time; excluding inconclusive, the decisions were correct 43.5 percent of the time.

The two evaluators (E3 and E4) who visually analyzed the charts without control questions averaged 37.5 percent correct decisions, 50 percent wrong, and 12.5 percent inconclusives. Excluding inconclusive decisions, these evaluators' averaged 42.8 percent correct judgments.

Reference to the binomial distribution (N=20, p=q=.5) showed that the number of correct decisions was significantly greater than chance (p=.05) only on the charts which included control questions; no evaluator obtained an accuracy significantly greater than chance when control questions were excluded from the protocol.

As shown in table 1, the evaluators who numerically scored the charts produced similar false negative error rates (the proportion of decisions on guilty subjects which were incorrect), regardless of the testing method. Exclusive control questions produced an average of 20 percent false negative errors; nonexclusive control questions and the charts without control questions both yielded a 10 percent false negative rate. In contrast, false positive errors averaged 35 percent for exclusive control questions, 15 percent for nonexclusive control questions, and 100 percent for the charts without control questions. An X^2 test, based on the assumption of an equal distribution of false positives in each testing method, showed that the number of such errors in the testing without control questions was significantly greater than in the QQ testing procedures (for El, $X^2(2)=9.7$, p<.01; for E2, $X^2(2)=9.4$, p<.01).

TABLE 1

			Decisions		
Testing Method/Evaluator	No. Correct	No. Wrong	No. Inconclusive	% False Positive	% False Negative
Exclusive CQ/					
E	14	5	1	30	20
E ₂	14	6	0	40	20
Nonexclusive CQ/					
E,	18	2	0	10	10
E,	16	3	1	20	10
Without CO/Numerical					
E	9	11	0	100	10
E ₂	8	11	1	100	10
Visual					
E,	9	10	1	50	50
E,	6	10	4	70	30

DISTRIBUTION OF EVALUATORS' DECISIONS FOR THE THREE TESTING METHODS

Interrater Agreement

Pearson's r, calculated on the total numerical scores (the numerical scores summed across all control/relevant question pairs, measures, and tests) for the two evaluators who did numerical scoring, showed an interrator agreement of .92 on the 40 CQ charts and .90 on all 60 charts. In addition, there were 60 pairs of decisions made by these evaluators; of these, there were three in which evaluators made opposite decisions (one in each of the testing methods) and three in which one evaluator made a decision and the mother made an inconclusive judgment (also one in each of the testing methods). Thus, 95 percent of all paired evaluator decisions were in agreement.

The two evaluators who visually inspected the charts without control questions made the same judgment in 8/20 decisions; six of these were on innocent subjects and two were on guilty subjects. In seven instances these

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evaluators made opposite decisions, and in five cases one evaluator rendered an inconclusive judgment while the other made a decision. Thus, when both of these evaluators made a decision of truthfulness or deception, they were in agreement 53 percent (8/15) of the time. Because these two evaluators did not produce results substantially different from those obtained by the evaluators who numerically scored the polygraph charts, their results were not further analyzed.

Field Numerical Scoring

Statistical analyses were carried out on the total numerical scores in order to assess the effects of the treatments. In order to simplify the presentation of the findings, all results based on the field numerical scoring pertain to the first evaluator (E1) who completed that analysis. (The scores for each evaluator separately, as well as the mean scores for the two evaluators combined, produced similar statistical results.)

Table 2 displays the mean total numerical scores for each group of subjects for each of the three testing procedure. A two-way Analysis of Variance (ANOVA), Guilt and Testing Procedure (Exclusive/Nonexclusive), carried out on the two CQ groups' total scores showed only a significant discrimination [F(1/36)=32.7, p<.001] between guilty (M=18.2) and innocent (M=18.6) subjects' scores; neither the main effect for Testing Procedure nor the interaction between Testing Procedure and Guilt was significant, F(1/36=.89 and F(1/36)=.98, respectively. Analysis using the absolute total scores for the CQ groups showed only a significant interaction between Testing Procedure and Guilt, F(1/36=4.9, p<.03; guilty subjects tested with nonexclusive control questions but innocent subjects did not, T-tests, indicated in table 2, showed mean scores significantly different from zero in the predicted direction for both types of control questions and with both innocent and guilty subjects.

	Type of Cor		
Group	Exclusive	Nonexclusive	No Control Questions
Guilty Innocent	-12.0° +18.5°	-24.5 ^b +18.8 ^e	-16.9 ^c -25.1 ^f
a T(9) = 2.3 b T(9) = 4.9 c T(9) = 3.1 d T(9) = 2.0 e T(9) = 3.5 f T(9) = 8.2			<u></u>

		TABL	Ξ2	2		
MEAN	TOTAL	NUMERICA	Ł	SCORES	FOR	THE
	THREE	TESTING	PF	ROCEDURI	S	

The mean total scores for the testing without control questions were not significantly different for guilty (M=16.9) and innocent (M=25.1) subjects t(18)=-1.3. The mean scores, however, were significantly different from zero for both groups of subjects (table 2) but the scores for the innocent subjects were in the wrong (guilty) direction.

Field Scoring of Each Physiological Measure

Table 3 shows the mean total field numerical scores for the four physiological measures separately and for each of the testing methods and subject groups. Initial analysis of these data was made by subjecting the four dependent variables to a Multivariate Analysis of Variance (MANOVA) with Guilt (Innocent/Guilty) and Testing Procedure (Exclusive/Nonexclusive/No Controls) as between-subject factors. That analysis showed significant effects for Guilty [Using Pillai's criterion, F(4/51)=6.05, p<.000]. Testing Procedure [Pillai's criterion, F(8/104)=2.26, p<.02], and for the Guilt x Method interaction [Pillai's criterion, F(8/104)=2.75, p<.008]. In order to explicate that finding, a two-way ANOVA (Guilt; Testing Procedure) was carried out separately on the scores for each of the four measures for the CQ groups. These analyses did not reveal any significant differences for any measure between the two types of Q testing procedures; however, there was significant discrimination between the guilty and innocent subjects' scores with each measure. For guilty and innocent subjects, in order, the mean scores were for thoracic respiration, M=2.6 & +2.7, [F(1/36)=10.3], p<.003]; abdominal respiration, M=3.1 & +3.45 [F(1/36)=16.3, p<.001]; SRR, M=7.85 & +6.7 [F(1/36)=21.8, p<.001]; and cardio, M=4.7 & +5.8 [F(1/36)=35.1, p<.001].

	Type of Cor	ntrol Question	
Group/ Measure	Exclusive	Nonexclusive	No Control Questions
Guilty			
Thoracic			
Respiration	-0.7	-4.5*	-4.4*
Abdominal			
Respiration	-1.8	-4.4*	-3.4*
SRR	-5.4	-10.3*	-6.5°
Cardio	-4.1*	-5.3*	-2.6
Innocent			
Thoracic			
Respiration	+2.4	+3.0	-5.7°
Abdominal			
Respiration	+2.7	+4.2*	-5.4*
SRR	+7.2*	+6.2*	-9.6*
Cardio	⊥4 ?*	±5.4*	A A*
UD ID	T0.2	T3.4	-4.4

		TABLE	3		
MEAN	TOTAL	NUMERICAL	SCORES	FOR	EACH
P	OLYGRAI	H PHYSIOL	GICAL I	TEAS	JRE

* Denotes mean score significantly different from zero.

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T-tests (shown in table 3), used to determine if the mean numerical scores for each physiological measure differed from zero in the predicted direction, showed that with nonexclusive control questions the mean score for all measures was statistically significant except for the thoracic respiration measure for the innocent subjects. With exclusive control questions the mean SRR score for the innocent subjects and the cardio scores for both innocent and guilty subjects were the only ones which were significant.

The total scores on each physiological measure for those subjects tested without control questions were subjected to MANOVA, treating the scores as dependent variables and Guilt as an independent variable; this analysis did not reveal any statistically significant findings. As indicated in table 3, however, all measures yielded mean scores significantly different from zero except for the "cardio" for the guilty subjects. All mean scores for the innocent subjects, however, were in the wrong direction.

Evaluator Confidence

Table 4 shows the mean evaluator confidence ratings for the various combinations of testing procedures and subject groups. As shown, for the QQ methods the ratings were identical (M=4.6) on innocent subjects; ratings were significantly higher on guilty subjects tested with nonexclusive (M=4.8) control questions than with exclusive (M=4.2) control questions [t(18)=2.12, p=.04]. Analysis of variance carried out on the confidence ratings in the QQ groups, however, did not show any statistically significant effects for Guilty [F(1,36)=.22] or Testing Procedure [F(1,36)=2.0]. The mean confidence ratings on the subjects tested without control questions, 4.9 for innocent subjects and 4.4 for guilty subjects, were not significantly different [t(18)=1.6] from each other nor were they significantly different from those assigned to the QQ subjects [F(2,54)=1.1].

	TA	BLE 4	
EVALI	JATORS '	MEAN	RATINGS
FOR	DECISIO	ON-CO	VFIDENCE

	Type of Cor		
Group	Exclusive	Nonexclusive	No Control Questions
Guilty	4.2	4.8*	4.4
Innocent	4.6	4.6	4.9

^a T(18) = 2.12, p = .04 for guilty subjects.

Subject Concern Ratings

Following polygraph testing, each subject indicated on a 4-point scale his concern for each of the questions asked during the testing, with higher scores indicative of greater concern. Table 5 shows the mean concern ratings for the subjects within each testing method and for both control and relevant questions. A three-way ANOVA (Guilt, Testing Procedure, Question Type), treating subjects' ratings on relevant and control questions as repeated measures, was carried out on these concern ratings for the two QQ groups. This analysis showed a significant Guilt by Question Type (relevant/control) interaction [F(1/36)=74.8, p<.000]. The difference in the ratings between the two testing procedures (exclusive/nonexclusive) was not significant nor was the Guilty by Testing Procedure by Question Type interaction; the effect for Guilt, however, was significant [F(1/36)=4.52, p<.04]. Thus, innocent subjects expressed greater concern for control (M=2.6) than for relevant (M=1.45) questions whereas guilty subjects felt greater concern for relevant (M=2.85) than for control (M=1.8) questions.

Subjects who were tested without control questions had mean ratings of concern (on the relevant questions on) of 1.6 and 2.7 for innocent and quilty subjects, respectively; this difference was significant [t(18)=4.13].

Pearson's r was calculated on the subject's mean concern ratings on the test questions and the total numerical scores for each of the polygraph measures. Since negative scores indicate "guilt" and positive scores "innocence," a positive relationship would be expected between the ratings on the control questions and the scores and a negative relationship between the scores and the ratings on the relevant questions. Pearson's r, calculated across all 60 subjects' ratings on the relevant questions and the numerical scores showed correlations between -.22 (thoracic respiration) and -.37 (SRR); all of these correlations were significant. The r values between the ratings on control questions (for the 40 subjects in the CQ groups) and numerical scores ranged from .12 (thoracic respiration) to .32 (SRR and cardio); only the SRR and cardio correlations were significant.

Group	Testing Procedures					
	<u>Exc</u> Control	l <u>usive</u> Relevant	<u>Nonex</u> Control	clusive [*] Relevant	<u>No Control</u> Irrelevant	Questions ^b Relevant
Guilty Innocent	1.8 2.5	2.9 1.4	1.8 2.7	2.8 1.5	-	2.7° 1.6

TABLE 5 MEAN SUBJECT RATINGS OF CONCERN FOR TEST QUESTIONS

* For CQ subjects only, Guilt by Question Type (relevant/control) = F(1/36) = 74.8, p<.001.

^b Across Three Procedures, relevant questions only, for Guilt, F(1,54) = 83.9, p<.001.

^c For No Control Questions, Guilty versus Innocent, T(18) = 4.13, p<01.

Objective Scoring of SRR Data

Table 6 shows the mean measurements generated by the objective scoring of the SRR data; these measurements are displayed separately for each testing procedure, question type, and subject group. It would be expected that the magnitude of the measurements would be greater to control questions than to relevant questions for innocent subjects and greater to relevant than to control questions for guilty subjects. (For the subjects tested without control questions, the irrelevant questions were used for comparison purposes.)

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As can be seen in table 6, the difference between relevant and control questions for the two CQ groups was in the predicted direction for both innocent and guilty subjects whether tested with exclusive or nonexclusive control questions. For subjects tested without control questions, the objective measurements generally showed greater responsiveness to the relevant than to the comparison, "irrelevant" questions, regardless of the guilt of the subject.

TABLE 6)
MEAN OBJECTIVE MEASUREMENTS	OF SRR AMPLITUDE BY
TESTING PROCEDURE AND	QUESTION TYPE

Group	Testing Procedure					
	<u>Excl</u> Control	<u>usive</u> Relevant	<u>None</u> Control	<u>cclusive</u> Relevant	<u>No Control</u> Irrelevant	Questions Relevant
<u>Guilty</u> SRR	12.3	15.9	8.3	16.1 *	13.9	15.9
Innocent SRR	18.7	15.7	16.3	11.6	18.0	21.9

* For the two CQ groups, SRR Guilt \times Question Type (relevant/control) = F(1/36) = 8.5, p<.005.

Statistical analysis of the objectively scores SRR data was made by calculating a three-way ANOVA (Testing Procedure, Guilt, Question type-relevant/control) on the CQ groups only, treating the measurements on subjects' relevant and control questions as a within-subject factor. This analysis revealed only a significant Guilt by Question type interaction effect [F(1,36)=8.5, p<.005]; thus, innocent subjects produced greater SRR responses to control questions than to relevant questions, whereas guilty subjects produced more pronounced responses to relevant than to control questions.

Analysis of the objective SRR measurements on the subjects testing without control questions was made by calculating a two-way (Guilt and Question type-relevant/irrelevant) ANOVA. This analysis did not reveal any significant effects.

According to field polygraph examiners, one of the advantages in the use of control questions is that they divert the attention of innocent persons away from relevant questions. Thus, given this position, it would be expected that the magnitude of responses of innocent persons to relevant test questions would be diminished for those whose question protocol included control questions in comparison with those who were not asked control questions. A test of this hypothesis was carried out here. The SRR measurements on the relevant questions only were used as a dependent variable in a one-way ANOVA for the innocent persons in each of the three testing procedures. This analysis showed that the difference between the three groups of innocent subjects was statistically significant, F(2,27)=4.2, p<.02. The use of Tukey (HSD) post-hoc comparisons, however, showed that only the subjects tested with nonexclusive control questions were significantly less reactive than the subjects tested without control questions. A similar analysis carried out on the quilty subjects' mean SRR responses did

not reveal a significant difference across the three groups. The difference in the innocent subjects' responses, therefore, was not merely a result of a general increase in reactivity when control questions were excluded from the questions list.

DISCUSSION

These results are generally supportive of the observations of field practitioners regarding Control Question testing. The field numerical scorings of the polygraph data showed that innocent (truthful) persons were more responsive to control than to relevant test questions, whereas guilty (deceptive) persons were more responsive to relevant than to control questions. In addition, the subjects' subjective ratings of concern for the two types of questions were strongly consistent with field observations and with prior, similar assessments (Bradley and Janisse 1981). Finally, the objective measurement of SRR responses, generally the most effective physiological measure in laboratory-based research (Barland and Raskin 1973, 1975; Horvath 1984; Podlesny and Raskin 1977; Timm 1982) also showed support for the expected relationship between subjects' guilt and differential responses to control and relevant test questions.

These findings show that CQ testing, relative to testing without control questions, has empirically demonstrated advantages; control question testing enhances the ability to make use of physiological data to discriminate more effectively between truthful and deceptive subjects. Moreover, as field examiners have maintained, the use of control questions reduces the probability of false positive errors. This is not to say, however, that such errors are precluded with control questions; rather, the introduction of control questions merely makes such errors less likely than would be shown without such questions.

And interesting and, perhaps, counterintuitive finding regarding the testing without control questions, is that the innocent subjects' numerical scores were more extreme in the "quilty" direction than were those of the actually guilty subjects for each of the physiological measures (see tables 2 and 3). It seem likely that this result is attributable to the scoring system used and the generally higher drive level of guilty subjects. The field numerical scoring system involves only a relative evaluation of response data to two question types, relevant and control questions. In scoring the charts without control questions, the relevant question responses were the standard against which relevant question responses were compared. A more extreme "guilty" (negative) score would result from either a greater response to a relevant question or a lesser (or absence of) response to a comparison ("control") question. If it can be assumed that quilty subjects generally have higher drive levels (Gustafson and Orne 1963; Horvath 1979), thus making it likely that they will be generally more physiologically reactive than will innocent persons, then, of course, their field numerical scores would be less extreme than would those of innocent persons, all else being equal.

It is difficult to reconcile these findings regarding the relative effectiveness of exclusive and nonexclusive control questions with the previous research on this topic. Podlesny and Raskin (1978) reported that

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exclusive control questions provided some advantages; they, unlike nonexclusive questions, led to significant identification of both quilty and innocent subjects and produced more reliable electrodermal responses. This, it was hypothesized, was because exclusive control questions held greater information processing demands in that subjects had to recall not only whether they had told the truth but were required also to consider when they had done the actions specified in the control questions. The present results, however, differ from those findings. In this research, nonexclusive control questions produced more effective identification of both quilty and innocent subjects with each of the four polygraph measures and they led to significantly greater total numerical scores (and evaluator confidence) for quilty subjects. These results are in direct opposition, therefore, to the contention by some field examiners that nonexclusive questions produce less effective discrimination of guilty persons. If this were true, the numerical scores of guilty persons tested with nonexclusive control questions would have been suppressed relative to those of guilty persons tested with exclusive control questions. In fact, however, the guilty persons tested with nonexclusive control questions produced significantly greater numerical scores than those tested with exclusive control questions. In other words, the use of nonexclusive control questions produced greater, not lesser, relevant and control question differentiation. Since this result occurred at no loss of differentiation for innocent persons--the scores here were almost identical--the present results provide greater support for the use of nonexclusive than exclusive control questions.

The difference in the accuracy produced by the two types of control questions was not statistically significant in either this or the earlier study. Nevertheless, the distribution of errors in the present research seemed to favor control questions of the nonexclusive type. Moreover, since false positive errors have predominated in prior studies, most of which employed exclusive control questions, and since the determinants of errors in CQ testing is an important concern, it is clear that additional research of this topic is warranted.

Almost all of the available laboratory research of CQ testing has involved the use of a "Zone Comparison" test procedure (Barland and Raskin 1975). These findings show that the commonly practiced field alternative to that procedure, the "Modified General Question Test," yields essentially similar accuracy. In previous research, the mean accuracy in similar studies using the "Zone Comparison" format was 80 percent; here, the mean accuracy for the two CQ procedures combined was also 80 percent. In general, this supports the argument that CQ testing is sufficiently robust that many of the minor differences in the manner in which that testing is structured have little effect (Horvath 1980).

The only other laboratory-based research in which a testing procedure similar to that used here was used, was reported by Szucko and Kleinmuntz (1981). Unfortunately the polygraph testing in that research was carried out by trainees, not experienced examiners, and it is not clear precisely how the testing protocol was structured. Also, the evaluators who interpreted the polygraph data were not permitted either to score the data in the way in which it is commonly done in the field or to evaluate all of the physiological data that were collected during the polygraph testing

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(personal communication, Kleinmuntz 1983). Because of those and other methodological deficiencies in that research (Ben-Shakhar and Lieblich 1984), it is not possible to compare those findings with the present results.

It is of interest to note that in spite of the hypothesis advanced by Honts, Hodes, and Raskin (1985) that the use of college students as subjects may account for the decreased accuracy in some laboratory studies (Barland and Raskin 1975; Bradley and Janisse 1981; Szucko and Kleinmuntz 1981), the present findings show an accuracy, at least with nonexclusive control questions, well within the range of that obtained in those studies that did not employ college students as subjects. It is of additional interest to note that the motivational level in this research was relatively low. The participants were promised only a small monetary reward (\$3.00) for motivational purposes and there was no explicit attempt to heighten their concern for the test outcome beyond that reward. Moreover, unlike some previous laboratory research (Dawson 1980; Honts, Hodes, and Raskin 1985; Podlesny and Raskin 1978; Raskin and Hare 1978), there was no effort made during poly-graph testing to enhance the signal value of the control questions in an attempt to overcome the inherent salience of the relevant test questions; this difference did not lead to a higher false positive rate than in prior Because these methodological concerns--subject population and studies. motivational devices-are generally regarded as being critical to the effectiveness of Q testing in laboratory settings (Dawson 1980; Podlesny and Raskin 1977; Raskin and Hare 1978), it is clear that there is a need for research to specify more precisely the role of these issues.

In summary, these findings supplement the growing body of laboratorybased evidence which shows that CQ testing, properly carried out and evaluated, can produce a high degree of accuracy in discriminating between truthful and deceptive persons. Whether and how much such results generalize to real-life settings, of course, are matters of considerable controversy (Ben-Shakhar and Lieblich 1984; Horvath 1984; Lykken 1981; Podlesny and Raskin 1977). Nevertheless, controlled studies yield results consistent with the empirically based practices of field examiners suggesting that there may be considerable merit in field observation; certainly, continued research in this area is warranted.

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THE DIRECTED LIE CONTROL QUESTION

By

Stan Abrams, Ph.D.

Abstract

The directed lie control question approach is currently being used in field examinations of criminal suspects. In this approach one of the usual control questions is replaced with a directed lie question, one to which the subject is instructed to lie about an issue that was admitted during the pre-test interview. If this approach were to be effective, it would simplify the construction of control questions, assure the examiner that the subject was responding deceptively, and probably reduce the likelihood of false positive findings.

The directed lie approach was studied in ten verified cases in the study. The results indicated the directed lie increased the scores in truthful subjects, thereby, reducing false positives. But at the same time it reduced the scores of deceptive subjects opening the door to false negatives. The findings suggest that more research is needed before this procedure can be relied on in field polygraph examinations.

The accuracy of a polygraph examination rests equally on the control and relevant questions. The latter, however, are easily developed and are rather straight forward as compared to control questions. Ideally, a control question should be equal in power to a relevant question, that is, the truthful subject should demonstrate as great a reaction to the control as the deceptive person shows on the relevant. It is apparent, however, that the control question is generally weaker resulting in a greater likelihood of false positives (calling a truthful person deceptive) than misdiagnosing a deceptive person (Abrams 1989). This has prompted various attempts at strengthening the position of the truthful person. Although Backster requires a lesser score for a person to be found truthful, (Backster 1990), the DoD Polygraph School teaches a method comparing the relevant items with the stronger control (DoDPI 1990). This writer emphasized to each subject that they must be truthful in response to every question if the test were to be valid with the assumption that this would direct the truthful person's orientation more to the control question More recently, attempts have been made to utilize a (Abrams 1976). different type of control question in which the subject is specifically requested to lie to the question rather than attempting to deny deception.

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The first use of the directed lie control question (DLOQ) was reported by Fuse (1982). He indicated at that time that it had evolved over the past sixteen years and it had been found to be most effective in multiple issue testing. Fuse did warn that there had to be the right amount of emphasis on the DLOQ because too much would dampen the response to the relevant question, and too little could cause a false positive reaction. In a study of this approach Horowitz (1989) employed a mock crime paradigm with sixty truthful and sixty deceptive subjects. He compared the effectiveness of the control question technique, the relevant-irrelevant technique, and two DLCQ procedures in which one utilized lying to neutral questions and the other lying to personal issues. Comparing the various procedures among the truthful subjects, 87% accuracy was obtained on the personal lie approach in contrast to 67% when the neutral lie was used. Employing the usual control question technique, 80% accuracy was reported while only 20% was found on the R-I procedure. For the deceptive subjects, the personal lie approach again was found to be more effective than the neutral lie with accuracy at 73% and 53% respectively. For the group in which the usual control question procedure was used, 53% accuracy was obtained while 100% accuracy was reported for the R-I approach. In a field study, Honts and Raskin (1988) evaluated 25 confirmed criminal tests in which DLOQ procedures were employed. Verification was obtained through admissions, physical evidence that conclusively exonerated the subject, or if the accusations were retracted. In regard to the latter, the alleged victim recanted, denying that the accusation was real. One DLOQ and two control questions were compared with three relevant questions on each administration of these tests. Employing this approach, the investigators reported that of the 25 cases, one was inconclusive, one error occurred on a deceptive subject, and the remainder were accurate. When blind scoring was employed, 90% accuracy was obtained when control questions alone were used, with both errors being false positives. Using both controls and one DLOQ 95.6 accuracy was found, with the one error being a false negative.

This writer has one concern about the prior study. The authors reported that eleven of the 25 subjects were suspects in child sexual abuse cases and one of the criteria utilized for verification was retraction of an accusation. 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. "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." (Toth & Whalen 1987)

In the above three investigations into the DLOQ technique, the results suggest that it could be an effective addition or even replacement for the control question procedure. It could assist in standardizing the control question procedure and simplify the process of developing control questions. The polygraphist could be assured that the subject is responding deceptively, and if the trend of this literature is consistent, it could reduce the likelihood of obtaining a false positive outcome.

The Directed Lie Control Question

As Fuse pointed out, the amount of emphasis placed on the DLCQ will determine the subject's response to it. This is, of course, equally true for the control question (OQ) and the relevant question (RQ) as well. Therefore, the manner in which any of these questions is introduced becomes of major significance and that in itself can determine the outcome of the test.

METHOD

An attempt was made in this study to determine what effect the DLOQ would have on the testing of criminal suspects. This method was employed in every test administered until ten verified cases were obtained. However, since this was an experimental procedure, the writer did not feel that he could risk jeopardizing the polygraph findings. Therefore, instead of the DLOQ 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 could not impinge on the test results in any way that could invalidate the test if it were to be used as evidence in court. In the final test, questions 4 and 6 were controls, 5 and 7 relevant questions, and 8 was the DLOQ.

Since the DLOQ was asked only one time as compared to the approximate three or four times it would have been employed in a routine directed lie test, the results of this study will be weakened in so far as generalizing from these findings to that specific test procedure. Obviously, in this experiment, the subject is only being instructed to lie on one administration of the test as in contrast to lying on three or four separate occasions. Whether this repetition tends to increase or decrease the physiologic reactions to the DLOQ would be difficult to determine, but there would be legitimate reasons to assume that the more that the statement was repeated, the less the reaction to that statement would be.

The ten cases consisted of six confirmed deceptive subjects and four confirmed truthful individuals. In all ten cases, verification was determined by confessions. In regard to the instructions given to the subjects, they were taken verbatim from an audio-taped examination by D. Raskin. Not only was the wording exactly the same, but a very strong effort was made to maintain the same inflection. In the usual DLOQ test, the subject is informed during the pre-test interview that he is to lie during the test to one of the typical control questions which he previously had made admissions, for example: "Did you ever tell one important lie in your life?" He is then reminded of this prior to the administration of each test.

Each of the ten examinations had been administered in the accepted manner for control question testing. During the pretest interview, information was obtained from the subject on medical, psychiatric, educational, and work background. The subject's police record was discussed as was knowledge about the case in question. The polygraph approach was explained and the questions to be asked were developed and discussed with the subject. A stim test was administered prior to the administration of the actual tests.

The following information was presented related to the DLOQ during the pretest interview. This was taken verbatim from the tape made by Raskin:

"There is one question on this test that I need to have that I want you to lie to. Just like in that numbers test, I had you lie to one question and made sure you responded properly and that you are a suitable subject for a polygraph test. I need to have a question on this test also now that I know what you look like when you lie and when you tell the truth. Now I want you to lie so that I can be sure that you respond appropriately, that you remain a good polygraph subject. So on this question I want you to lie and I also want you to think of the particular time that you did something like this but I don't want you to tell me. I just want you to lie. Before 1985, did you ever tell even one lie? I want you to lie to that question. Did you think of a time when you lied? Did you lie to someone in your family, a friend, a teacher? Do you have something in your mind? Okay, when I ask you, 'Before 1985 did you tell even one lie?' The answer will be no and I want you to think of a time when you lied. Just like the numbers test. You chose the number X and I told you to lie to it. IN this test you had chosen the number X and said no and that was a lie. You know you did lie in the past and that's what you are going to be thinking about when I ask you, 'Before 1985, did you ever tell even one lie?' You answer no so you'll know it will be a lie."

After the administration of a single test, the tape by Raskin indicated that he reviewed each of the three control questions with the subject. This was followed by a single question related to the three relevant items, "How about the questions related to X, any problems with those; are they clear?" He then discussed the DLOQ: "How about the question I asked you to lie to? How did you feel when you answered that one? Did you know you were lying? Did you think about the things that you lied about? It's important that you are aware that you are lying on that question so that I know that you are lying to it."

Since in this study the DLOQ was only asked once, the wording to the DLOQ was changed from the past tense to the future tense. In this investigation, the DLOQ was asked only in the last of the test series and the information related to the DLOQ was presented to the subject immediately before the administration of the test. Since Raskin had administered the DLOQ in the two tests prior to the administration of the third test, his questions were placed in the past tense. For example, "How did you feel when you answered that one?" referring to the DLOQ. In this study, since the DLOO had not been asked prior to the administration of this third test, the question was altered to read, "How will you feel when you answer that one?" Other than that, it was essentially the same as Raskin's presentation. In the tests that were administered in this study, no special emphasis was placed on either the control or relevant questions. If between tests, there were some discussion about a relevant question, equal attention would be expended on the control questions. To emphasize one question over another is very likely to create a greater physiologic reaction to that question which is stressed. Too much emphasis upon the control question could result in a false negative response, calling a deceptive person truthful, while too much stress upon the relevant question could create the opposite reaction. As noted above, Raskin did not follow this procedure. He asked a single question about each of the control questions, but only one question to cover all three relevant items. It is felt that this could serve to reduce false positive responses, but at the risk of increasing false negative errors.

The charts were numerically scored by the examiner employing the usual +3 0 -3 format. Each relevant question was compared to the control question immediately preceding it, except the DLOQ (Question 8) followed the final relevant question (Question 7) with which it was compared.

RESULTS

The DLOQ consistently resulted in greater physiological arousal when compared to both the CQs and RQs.

A compar on the	ison of the final tes	e findings of t t administered field polygraph	he RQ/CQ with th on each of ten v tests.	e RQ/DLOQ erified	2
NDI (4	Subjects)		DI (6 Subjects)		
	RQ/CQ	RQ/DLQQ		RQ/CQ	RQ/DLQQ
Subject A	+4	+6	Subject E	-2	+2
Subject B	+4	+6	Subject F	0	+4
Subject C	+2	+4	Subject G	-1	+2
Subject D	+1	+5	Subject H	-2	+5
-			Subject I	-1	+5
			Subject J	-2	+4

Table 1 shows the comparison of the scores between CQ Question 6 and RQ Question 7 with DLCQ Question 8 and RQ Question 7 for both the truthful and deceptive subjects. As can be seen from these results, those individuals who had been diagnosed as non-deceptive obtained even greater scores in the direction of truthfulness, but so too did the deceptive subjects. While it certainly could be argued that these results indicate that the DLOQ technique would increase polygraph accuracy with the truthful, the impact that this approach would have on the accuracy with the deceptive must be considered as well. From the scores one can see that the reactions to the DLOQ can be very dramatic to the extent that they can literally overwhelm the responses to the RQs even in those verified deceptive subjects. The question that must be asked is whether the reaction to the DLOQ could be so great as to result in false negatives, that is, mislabeling the deceptive as truthful.

DISCUSSION

The large but spurious reactions to the DLOQ can be the result of a number of factors. It could be related to the act of lying, but obviously, unlike QQs it would not be due to the feat of the lie being detected since the subject has permission to lie and the examiner is obviously aware of the deception. It is conceivable that the response occurs because the subject was told that responding deceptively is important to determine fitness. However, one must also consider that the reaction is based on the greater

emphasis placed on the DLOQ as compared to the control and relevant items. This same emphasis is placed on the control questions where each of the three is discussed individually between tests, but the inquiry into the subject's reaction to the relevant items was handled rather briefly. Arther (1982) has reported using a technique similar to this as a means of creating a greater reaction to a false key in a peak of tension test when he used either more volume, altered his tone, gestured in some manner, or discussed the question a bit more than the other items.

It can be seen that there are many ways of tilting the delicate balance between control and relevant questions. Any of these methods could be employed in an attempt at developing a technique that will more strongly orient the truthful toward the control questions, but one must be wary not to diminish the impact of the relevant questions in the process. With further research, the DLOQ might accomplish that objective, but in the mean time it should be viewed as an experimental technique and should not be used to determine truth or deception in an actual field test situation.

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If law enforcement officials were aware of the hearings and passage of the Americans with Disabilities Act of 1990, they certainly kept quiet about it. Nonetheless, Public Law 101-336, signed by President Bush on July 26, 1990, may have a significant impact on law enforcement hiring practices. The new law applies to all private and public agencies [except federal]. Much of the law concerns public accommodations for the 43,000,000 Americans that Congress believes are handicapped, and who suffer needless privations and discrimination. The rebuilding of public accommodations will cost billions. What is of interest to law enforcement, public and private, is the impact on preemployment testing. In part, the law prohibits some testing and inquiries before an offer of employment is made. Here is an example of the perplexing nature of the law, taken from the Congressional Conference Report: "A covered entity shall not require a medical examination and shall not make inquiries of an employee as to whether such employee is an individual with a disability or as to the nature or severity of the disability, unless such examination or inquiry is shown to be job-related and consistent with business necessity." It is, however, acceptable to make inquiries into the ability of an employee to perform job-related functions. The information on a disability must be treated separately from other medical and personnel records.

Past use of drugs, and inquiries about past use is unclear. A person who is currently engaging in the illegal use of drugs is not protected by the act, but a person who has successfully completed a supervised drug rehabilitation program and is no longer engaging in the illegal use of drugs, or has otherwise been rehabilitated successfully and is no longer engaging in such use is protected. Indeed they may still be in a supervised rehabilitation program and be protected if not using drugs. You may take measures to be sure that such persons are no longer using drugs, but they may not be discriminated against in hiring. The question arises, can law enforcement agencies deny employment on the grounds that such prior illegal use was a violation of the law? Can a polygraph examiner inquire about prior drug use? Psychological screening of candidates may also be limited. The relevant portions of the Act and proposed EEOC rules have been printed here for officers to give to counsel for advice on changing procedures. Fortunately, the Act is not yet in effect.

EXCERPTS FROM PUBLIC LAW 101-336 "AMERICANS WITH DISABILITIES ACT OF 1990"

SEC. 101. DEFINITIONS

Title I. Employment

As used in this title:

(1) Commission.--The term "Commission" means the Equal Employment Opportunity Commission established by section 705 of the Civil Rights Act of 1964 (42 U.S.C. 2000e-4).

(2) Covered Entity.--The term "covered entity" means an employer, employment agency, labor organization, or joint labor-management committee.

(3) Direct Threat.--The term "direct threat" means a significant risk to the health or safety of others that cannot be eliminated by reasonable accommodation.

(4) Employee.--The term "Employee" means an individual employed by an employer.

(5) Employer.--

(A) In general.--The term "employer" means a person engaged in an industry affecting commerce who has 15 or more employees for each working day in each of 20 or more calendar weeks in the current or preceding calendar year, and any agent of such person, except that, for two years following the effective date of this title, an employer means a person engaged in an industry affecting commerce who has 25 or more employees for each working day in each of 20 or more calendar weeks in the current or preceding year, and any agent of such person.

(B) Exceptions.--The term "employer" does not include--

(i) the United States, a corporation wholly owned by the government of the United States, or an Indian tribe; or

(ii) a bona fide private membership club (other than a labor organization) that is exempt from taxation under section 501(c) of the Internal Revenue Code of 1986.

(6) Illegal Use of Drugs.--

(A) In general.--The term "illegal use of drugs" means the use of drugs, the possession or distribution of which is unlawful under the Controlled Substances Act [21 U.S.C. 812). Such term does not include the use of a drug taken under supervision by a licensed health care professional, or other uses authorized by the Controlled Substances Act or other provisions of Federal law.

(B) Drugs.--The term "Drug" means a controlled substance, as defined in schedules I through V of section 202 of the Controlled Substances Act.

(7) Person, etc.--The term "person", "labor organization" "employment agency", "commerce", and "industry affecting commerce", shall have the same meaning given such terms in section 701 of the Civil Rights Act of 1964 (42 U.S.C. 2000e).

(8) Qualified Individual With a Disability.--The term "qualified individual with a disability" means an individual with a disability who, with or without reasonable accommodation, can perform the essential functions of the employment position that such individual holds or desires. For the purposes of this title, consideration shall be given to the employer's judgment as to what functions of a job are essential, and if an employer has prepared a written description before advertising or interviewing applicants for the job, this description shall be considered evidence of the essential functions of the job.

(9) Reasonable Accommodation.--The term "reasonable accommodation" may include--

(A) making existing facilities used by employees readily accessible to and usable by individuals with disabilities; and

(B) job restructuring, part-time or modified work schedules, reassignment to a vacant position, acquisition or modification of equipment or devices, appropriate adjustment or modifications of examinations,

training materials or policies, the provision of qualified readers or interpreters, and other similar accommodations for individuals with disabilities.

(10) Undue Hardship.--

(A) In general.--The term "undue hardship" means an action requiring significant difficulty or expense, when considered in light of the factors set forth in subparagraph (B).

(B) Factors to be Considered.--In determining whether an accommodation would impose an undue hardship on a covered entity, factors to be considered include--

(i) the nature and cost of the accommodation needed under this Act;

(ii) the overall financial resources of the facility or facilities involved in the provision of the reasonable accommodation; the number of persons employed at such facility, the effect on expenses and resources, or the impact otherwise of such accommodation upon the operation of the facility;

(iii) the overall financial resources of the covered entity; the overall size of the business of a covered entity with respect to the number of its employees; the number, type, and location of its facilities; and

(iv) the type of operation or operations of the covered entity, including the composition, structure, and functions of the workforce of such entity; the geographic separateness, administrative, or fiscal relationship of the facility or facilities in question to the covered entity.

SEC. 102. DISCRIMINATION.

(a) General Rule.--No covered entity shall discriminate against a qualified individual with a disability because of the disability of such individual in regard to job application procedures, the hiring, advancement, or discharge of employees, employee compensation, job training, and other terms, conditions, and privileges of employment.

(b) Construction.--As used in subsection (a), the term "discriminate" includes--

(1) limiting, segregating, or classifying a job applicant or employee in a way that adversely affects the opportunities or status of such applicant or employee because of the disability of such applicant or employee;

(2) participating in a contractual or other arrangement or relationship that has the effect of subjecting a covered entity's qualified applicant or employee with a disability to the discrimination prohibited by this title (such relationship includes a relationship with an employment or referral agency, labor union, an organization providing fringe benefits to an employee of the covered entity, or an organization providing training and apprenticeship programs);

(3) utilizing standards, criteria, or methods of administration--

(A) that have the effect of discrimination on the basis of disability; or

(B) that perpetuate the discrimination of others who are subject to common administrative control;

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(4) excluding or otherwise denying equal jobs or benefits to a qualified individual because of the known disability of an individual with whom the qualified individual is known to have a relationship or association;

(5) (A) not making reasonable accommodations to the known physical or mental limitations of an otherwise qualified individual with a disability who is an applicant or employee, unless such covered entity can demonstrate that the accommodation would impose an undue hardship on the operation of the business of such covered entity; or

(B) denying employment opportunities to a job applicant or employee who is an otherwise qualified individual with a disability, if such denial is based on the need of such covered entity to make reasonable accommodation to the physical or mental impairments of the employee or applicant;

(6) using qualification standards, employment tests or other selection criteria that screen out or tend to screen out an individual with a disability or a class of individuals with disabilities unless the standard, test or other selection criteria, as used by the covered entity, is shown to be job-related for the position in question and is consistent with business necessity; and

(7) failing to select and administer tests concerning employment in the most effective manner to ensure that, when such test is administered to a job applicant or employee who has a disability that impairs memory, manual, or speaking skills, such test results accurately reflect the skills, aptitude, or whatever other factor of such applicant or employee that such test purports to measure, rather than reflecting the impaired sensory, manual, or speaking skills of such employee or applicant (except where such skills are the factors that the test purports to measure.).

(c) Medical Examinations and Inquiries.--

(1) In general.--The prohibition against discrimination as referred to in subsection (a) shall include medical examinations and inquiries.

(2) Preemployment.--

(A) Prohibited Examination or Inquiry.--Except as provided in paragraph (3), a covered entity shall not conduct a medical examination or make inquiries of a job applicant as to whether such applicant is an individual with a disability or as to the nature or severity of such disability.

(B) Acceptable Inquiry.--A covered entity may make preemployment inquiries into the ability of an applicant to perform job-related functions.

(3) Employment Entrance Examination.--A covered entity may require a medical examination after an offer of employment has been made to a job applicant and prior to the commencement of the employment duties of such applicant, and may condition an offer of employment on the results of such examination, if--

(A) all entering employees are subjected to such an examination regardless of disability;

(B) information obtained regarding the medical condition or history of the applicant is collected and maintained on separate forms and in separate medical files and is treated as a confidential medical record, except that--

(i) supervisors and managers may be informed regarding necessary restrictions on the work or duties of the employee and necessary accommodations;

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(ii) first aid and safety personnel may be informed,

when appropriate, if the disability might require emergency treatment; and (iii) government officials investigating compliance with

this Act shall be provided relevant information on request; and (C) the results of such examination are used only in accor-

dance with this title.

(4) Examination and Inquiry.--

(A) Prohibited Examinations and Inquiries.—A covered entity shall not require a medical examination and shall not make inquiries of an employee as to whether such employee is an individual with a disability or as to the nature or severity of the disability, unless such examination or inquiry is shown to be job-related and consistent with business necessity.

(B) Acceptable Examinations and Inquiries.--A covered entity may conduct voluntary medical examinations, including voluntary medical histories, which are part of an employee health program available to employees at the work site. A covered entity may make inquiries into the ability of an employee to perform job-related functions.

(C) Requirement.--Information obtained under subparagraph (B) regarding the medical condition or history of any employee are subject to the requirements of subparagraphs (B) and (C) of paragraph (3).

SEC. 103. DEFENSES.

(a) In General.--It may be a defense to a charge of discrimination under this Act that an alleged application of qualification standards tests, or selection criteria that screen out or tend to screen out or otherwise deny a job or benefit to an individual with a disability has been shown to be job-related and consistent with business necessity, and such performance cannot be accomplished by reasonable accommodation, as required under this title.

(b) Qualification Standards.--The term "qualification standards" may include a requirement that an individual shall not pose a direct threat to the health or safety of other individuals in the workplace.

(c) Religious Entities .--

(1) In General.--This title shall not prohibit a religious corporation, association, educational institution, or society from giving preference in employment to individuals of a particular religion to perform work connected with the carrying on by such corporation, association, educational institution, or society of its activities.

(2) Religious Tenets Requirement.--Under this title, a religious organization may require that all applicants and employees conform to the religious tenets of such organization.

(d) List of Infectious and Communicable Diseases .--

(1) In General.--The Secretary of Health and Human Services, not later than 6 months after the date of enactment of this Act, shall--

(A) review all infectious and communicable diseases which may be transmitted through handling the food supply;

(B) publish a list of infectious and communicable diseases which are transmitted through handling the food supply;

(C) publish the methods by which such diseases are transmitted; and

(D) widely disseminate such information regarding the list of diseases and their modes of transmissibility to the general public.

Such list to be updated annually.

(2) Applications.--In any case in which an individual has an infectious or communicable disease that is transmitted to others through the handling of food, that is included on the list developed by the Secretary of Health and Human Services under paragraph (1), and which cannot be eliminated by reasonable accommodations, a covered entity may refuse to assign or continue to assign such individual to a job involving food handling.

(3) Construction.—Nothing in this Act shall be construed to preempt, modify, or amend any State, county, or local law, ordinance, or regulation applicable to food handling which is designed to protect the public health from individuals who pose a significant risk to the health or safety of others, which cannot be eliminated by reasonable accommodation, pursuant to the list of infectious or communicable diseases and the modes of transmissibility published by the Secretary of Health and Human Services.

SEC. 104. ILLEGAL USE OF DRUGS AND ALCOHOL.

(a) Qualified Individual With a Disability.--For purposes of this title, the term "qualified individual with a disability" shall not include any employee or applicant who is currently engaging in the illegal use of drugs, when the covered entity acts on the basis of such use.

(b) Rules of Construction. -- Nothing in subsection (a) shall be construed to exclude as a qualified individual with a disability an individual who--

(1) has successfully completed a supervised drug rehabilitation program and is no longer engaging in the illegal use of drugs, or has otherwise been rehabilitated successfully and is no longer engaging in such use;

(2) is participating in a supervised rehabilitation program and is no longer engaging in such use; or

(3) is erroneously regarded as engaging in such use, but is not engaging in such use;

except that it shall not be a violation of this Act for a covered entity to adopt or administer reasonable policies or procedures, including but not limited to drug testing, designed to ensure that an individual described in paragraph (1) or (2) is no longer engaging in the illegal use of drugs.

(c) Authority of Covered Entity .-- A covered entity--

(1) may prohibit the illegal use of drugs and the use of alcohol at the workplace by all employees;

(2) may require that employees shall not be under the influence of alcohol or be engaging in the illegal use of drugs at the workplace;

(3) may require that employees behave in conformance with the requirements established under the Drug-Free Workplace Act of 1988 (41 U.S.C. 701 et seq.);

(4) may hold an employee who engages in the illegal use of drugs or who is an alcoholic to the same qualification standards for employment or job performance and behavior that such entity holds other employees, even if any unsatisfactory performance or behavior is related to the drug use or alcoholism of such employee; and

(5) may, with respect to Federal regulations regarding alcohol and the illegal use of drugs, require that--

(A) employees comply with the standards established in such regulations of the Department of Defense, if the employees of the covered entity are employed in an industry subject to such regulations, including complying with regulations (if any) that apply to employment in sensitive positions in such an industry, in the case of employees of the covered entity who are employed in such positions (as defined in the regulations of the Department of Defense);

(B) employees comply with the standards established in such regulations of the Nuclear Regulatory Commission, if the employees of the covered entity are employed in an industry subject to such regulations, including complying with regulations (if any) that apply to employment in sensitive positions in such an industry, in the case of employees of the covered entity who are employed in such positions (as defined in the regulations of the Nuclear Regulatory Commission); and

(C) employees comply with the standards established in such regulations of the Department of Transportation, if the employees of the covered entity are employed in a transportation industry subject to such regulations, including complying with such regulations (if any) that apply to employment in sensitive positions in such an industry, in the case of employees of the covered entity who are employed in such positions (as defined in the regulations of the Department of Transportation).

(d) Drug Testing.--

(1) In General.--For purposes of this title, a test to determine the illegal use of drugs shall not be considered a medical examination.

(2) Construction.--Nothing in this title shall be construed to encourage, prohibit, or authorize the conducting of drug testing for the illegal use of drugs by job applicants or employees or making employment decisions based on such test results.

(e) Transportation Employees.--Nothing in this title shall be construed to encourage, prohibit, restrict, or authorize the otherwise lawful exercise by entities subject to the jurisdiction of the Department of Transportation of authority to--

(1) test employees of such entities in, and applicants for, positions involving safety-sensitive duties for the illegal use of drugs and for on-duty impairment by alcohol; and

(2) remove such persons who test positive for illegal use of drugs and on-duty impairment by alcohol pursuant to paragraph (1) from safety-sensitive duties in implementing subsection (c).

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EXCERPTS FROM THE FEDERAL REGISTER VOLUME 55, NO. 148, 1 AUGUST 1990

EEOC POLICY GUIDANCE - AMERICANS WITH DISABILITIES ACT OF 1990

The notice was to give policy guidance on provisions of the American with Disabilities Act of 1990: Summary of the Act and responsibilities of the EEOC in enforcing the Act's prohibitions against discrimination in employment on the basis of disability. The originator is the Office of the Legal Counsel, EEOC.

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EXCERPTS

Title I. Employment

Section 102 of the Act makes it unlawful for a covered entity to discriminate against any qualified individual with a disability because of that individual's disability in regard to job application procedures; the hiring, advancement or discharge of employees; compensation; job training; and other terms, conditions, and privileges of employment. Section 101(2) of the Act defines the term "covered entity" to mean "an employer, employment agency, labor organization, or joint labor-management committee." The definitions of the terms "employment agency" and "labor organization" contained in Sec. 701 of Title VII are incorporated by reference into the ADA. (Sec. 101(7)). The term "employer" is also defined as it is in Title VII except, as noted above, for the first two years after the effective date, it includes only employers who employe 25 or more employees. (Sec. 101(5)(A)). The term "employer" does not include the United States, a corporation wholly owned by the government of the United States, an Indian Tribe, or a bona fide private membership club (other than a labor organization) that is exempt from taxation under section 501(c) of the Internal Revenue Code of 1986. (Sec. 101(5)(B)).

A. Who is Protected

Title I of the ADA prohibits discrimination against qualified individuals with disabilities. (Sec. 102(a)). Thus, in order to be accorded the protections of the Act, an individual must be "disabled" and "qualified" to perform the job. The Act defines the term "disability" to mean "a physical or mental impairment that substantially limits one or more of the major life activities of an individual; having a record of such an impairment; or being regarded as having such an impairment." (Sec. 3(2)). The term "qualified individual with a disability" means an "individual with a disability who, with or without reasonable accommodation, can perform the essential functions of the employment position that such individual holds or desires." (Sec. 101(8)).

The definitions of the terms "individual with a disability"³ and "qualified individual with a disability" and the term "reasonable accommodation," which is part of the latter definition, are central to the nondiscrimination mandate of the ADA. The statute itself contains detailed guidance on these terms, drawn from Rehabilitation Act regulations. The Committee will develop regulations and compliance manual sections that will provide additional guidance prior to the effective date of the Act.

B. Discrimination Defined

The ADA expressly defines the term "discriminate." Section 102(b) of the Act provides that the term includes:

~ Limiting, segregating, or classifying a job applicant or employee in a way that adversely affects his/her opportunities or status because of the disability of the individual (e.g., making employment decisions on the basis of presumptions about the abilities of a class of individuals rather than on the basis of facts regarding an individual applicant or employee);

~ Participating in a contractual or other arrangement (e.g., collection bargaining agreements, agreements with employment agencies or training/apprenticeship programs) that has the effect of subjecting a qualified applicant or employee with a disability to discrimination prohibited by Title I;

~ Utilizing standards, criteria, or methods of administration that have the effect of discriminating on the basis of disability, or that perpetuate the discrimination of others who are subject to common administrative control;

~ Discriminating against a qualified individual because that individual is known to have a relationship or association with an individual with a disability, such as a spouse;

~ Not making reasonable accommodations to the know physical or mental limitations of an otherwise qualified individual with a disability who is an applicant or employee unless such entity can demonstrate that the accommodation would impose an undue hardship on the operation of the business, or denying employment opportunities to such a job applicant or employee if the denial is based on the need to provide reasonable accommodation;

~ Using qualification standards, employment tests or other selection criteria that screen out or tend to screen out an individual with a disability or a class of individuals with disabilities unless the standard, test or other selection criteria is shown to be job-related for the position in question and is consistent with business necessity;

~ Failing to select and administer tests concerning employment in the most effective manner to ensure that the test results accurately reflect the abilities of an applicant or employee with a disability, rather than his or her impaired sensory, manual, or speaking skills, except where the intent of a test is to measure those factors.

Section 102(c) specifically applies the prohibitions against discrimination to medical examinations and inquiries. The Report of the House Committee on Education and Labor explains the reasons for these explicit provisions:

> Historically, employment application forms and employment interviews requested information concerning an applicant's physical or mental condition. This information was often used to exclude applicants with disabilities ... before their ability to perform the job was even evaluated. In order to assure that misconceptions do not bias the employment selection process, the legislation sets forth a process which begins with the prohibition to pre-offer medical examinations and inquiries.

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(Committee Report at pp. 72-73). A covered entity cannot conduct a medical examination or ask a job applicant if (s)he is an individual with a disability or inquire about the nature or severity of the disability before an offer of employment is made. (Sec. 102(c)(2)(A)). However, it is permissible to make preemployment inquiries into the ability of an applicant to perform job-related functions so long as the inquiries are not phrased in terms of disability. (Sec. 102(c)(2)(B). For example, an employer may ask whether an applicant can type if typing is an essential job function, but may not ask whether the applicant has a visual disability.

A covered entity may require a medical examination and may condition an offer of employment on the results of this examination after an offer of employment is made, but before the individual actually begins work, if all entering employees in the same job category must take the examination regardless of disability. In addition, information obtained regarding the medical condition or history of the applicant must be collected and maintained on separate forms and in separate medical files, and treated as confidential, 4 and the results of the physical examination must be used only in accordance with the employment provisions of the ADA, i.e., used as the basis for denying employment only if they render the individual not qualified for the job with or without reasonable accommodation. (Sec. 102(c)(3)).

The Act prohibits medical examinations of employees or inquiries about whether an employee is an individual with a disability or about the nature or severity of a disability, unless the examination or inquiry is job-related and consistent with business necessity. (Sec. 102(c)(4)(A)). A covered entity may conduct voluntary medical examinations as part of an employee health program available to all employees. (Sec. 102(c)(4)(B)). Information obtained about the medical condition or history of employees is subject to the same requirements regarding confidentiality and maintenance of the information as apply to information obtained during post-offer medical examinations and inquiries. (Sec. 102(c)(4)(C)).

C. <u>Retaliation</u>

Like Title VII, the ADA prohibits a covered entity from discriminating against any individual for filing a charge of discrimination, opposing any practice or act made unlawful by the Act or for participating in any proceeding under the Act. (Sec. 503(a)). It is also unlawful to coerce, intimidate, threaten or interfere with any individual in the exercise or enjoyment of his/her rights under the Act or because (s)he aided or encouraged any other individual in the exercise or enjoyment of rights under the Act. (Sec. 503(b)).

D. <u>Defenses</u>

The ADA contains specific defenses that a covered entity may raise to a charge of discrimination. If a charging party alleges that the application of qualification standards,⁵ tests, or selection criteria screen out or tend to screen out or otherwise deny a job or benefit to an individual with a disability, the covered entity may raise, as a defense to the charge, that the qualification standards, tests or selection criteria have been shown to

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be job-related and consistent with business necessity, and such performance cannot be accomplished by reasonable accommodation. (Sec. 103(a)).

The Act contains a defense which may be raised by religious entities. Section 103(c)(1) provides that the employment provisions of the Act do not prohibit a religious corporation, association, educational institution or society from giving preference in employment to individuals of a particular religion to perform work connected with the organization's activities. This provision is similar to Sec. 702 of Title VII, and should be interpreted in a consistent manner. In addition, the ADA adds a provision not in Title VII, stating that a religious organization may require that all applicants and employees conform to the religious tenets of the organization. (Sec. 103(c)(2)).

The ADA also contains a defense pertaining to infectious and communicable diseases. The Secretary of Health and Human Services is required to review all communicable diseases that may be transmitted through handling the food supply, and then publish a list of diseases that actually are transmitted through food handling. (Sec. 103(d)(1)(A)(B)). The list must be updated annually. The Secretary is also required to publish the methods by which such diseases are transmitted, and to widely disseminate the list and the methods of transmission. (Sec. 103(d)(1)(C)(D)). A covered entity may refuse to assign or continue to assign an individual who has a disease included on the list to a job involving food handling, if the risk of transmitting that disease to others through the handling of food cannot be eliminated by reasonable accommodation.

The Act does not affect State, county, local law or ordinance or regulation applicable to food handling which is designed to protect the public health from individuals who pose a significant risk to the health and safety of others which cannot be eliminated by reasonable accommodation pursuant to the list of diseases and methods of transmission published by the Secretary. (Sec. 103 (d)(3)).

E. <u>Reasonable Accommodation</u>

As indicated above, it is a violation of the Act to fail to provide reasonable accommodation to the known physical or mental limitations of an otherwise qualified individual with a disability unless to do so would impose an undue hardship on the operation of the covered entity's business. The duty to provide reasonable accommodation encompasses any appropriate response to the needs of a particular individual with a disability that will provide the individual with an equal opportunity to be employed or to advance in an identified job or jobs. The term "reasonable accommodation" is defined to include making existing facilities accessible; job restructuring; part-time or modified work schedules; reassignment to a vacant position; appropriate adjustment or modification of examinations, training materials or policies; the provision of qualified readers or interpreters; and other similar accommodations. (Sec. 101(9)). However, these examples are not meant to be exhaustive, but rather to provide examines of the nature of the obligation. A covered entity is not obligated to provide reasonable accommodation if it can demonstrate that the accommodation would cause an undue hardship on the operation of its business. An undue hardship exists when an accommodation would require "significant" difficulty or "expense" when considered in light of the factors set forth in the Act. (Sec. 101(10)(A)). Those factors are:

> (i) the nature and cost of the accommodation needed under this Act; (ii) the overall financial resources of the facility or facilities involved in the provision of the reasonable accommodation; the number of persons employed at such facility; the effect on expenses and resources, or the impact otherwise of such accommodation upon the operation of the facility; (iii) the overall financial resources of the covered entity; the overall size of the business of a covered entity with respect to the number of its employees; the number, type, and location of its facilities; and (iv) the type of operation or operations of the covered entity, including the composition, structure, and functions of the workforce of such entity; the geographic separateness, administrative, and fiscal relationship of the facility or facilities in question to the covered entity.

(Sec. 101(10)(B)). The weight given to each factor in making a determination of "undue hardship" will vary depending on the facts of a particular situation and turns on both the nature and cost of the accommodation in relation to the employer's resources and operations.

F. Illegal Use of Drugs and Alcohol

The ADA contains several provisions pertaining to the illegal use of drugs and alcohol.⁶ Section 104(a) of the Act provides that the term "qualified individual with a disability" does not include any employee or applicant who is currently engaging in the illegal use of drugs, when the covered entity acts on the basis of such use. Therefore, if an employer discharges an employee because (s)he engages in the illegal use of drugs, that employee would not be a qualified individual with a disability. However, Sec. 104(a) does not exclude an individual who:

~ has successfully completed a supervised drug rehabilitation program and is no longer engaging in the illegal use of drugs, or has otherwise been rehabilitated successfully and is no longer engaging in such use;

~ is participating in a supervised rehabilitation program and is no longer engaging in such use; or,

~ is erroneously regarded as engaging in such use, but is not engaging in such use.

(Sec. 104(b)). In addition, the Act provides that nothing in Title I should be construed to encourage, prohibit or authorize the testing of employees or applicants for the illegal use of drugs, or making employment decisions based on the test results. (Sec. 104(d)(2)). A test to determine the use of illegal drugs is not considered a medical examination. (Sec. 104(d)(1)).

The Act also contains several provisions which expressly permit a covered entity to prohibit the illegal use of drugs and the use of alcohol at the workplace, and to require that employees not be under the influence of alcohol while working. (Secs. 104(c)(1)(2)(3) and (5)). In addition, the Act permits a covered entity to hold an employee who uses drugs illegally or is an alcoholic to the same behavior and performance standards as it holds other employees even if his/her unsatisfactory performance or behavior is related to the employee's drug use or alcoholism. Sec. 104(c)(4).

<u>Notes</u>

³ The Act excludes certain conditions from the definition of the term "disability". That term does not apply to an individual solely because (s)he is a transvestite. (Sec. 508). The term also does not include homosexuality, bisexuality, transvestism, transsexualism, pedophilia, exhibitionism, voyeurism, gender identity disorders not resulting from physical impairments, or other sexual disorders. Compulsive gambling, kleptomania, pyromania or psychoactive substance use disorders resulting from current illegal use of drugs are also excluded from the definition of the term "disability". (Sec. 511). The Act also excludes from the definition of the term "individual with a disability", individuals who are currently engaging in the illegal use of drugs, when the covered entity acts on the basis of such use.

⁴ The Act permits covered entities to inform supervisors and managers of necessary restrictions on the work or duties of the employee, and of necessary accommodations. In addition, first aid and safety personnel may be informed, when appropriate, if the disability might require emergency treatment. Covered entities are also required to provide relevant information to government officials investigating compliance with the ADA upon request. Sec. 102(c)(3)(B)(i), (ii), and (iii).

⁵ The term "qualification standard" may include a requirement that an individual not pose a direct threat to the health or safety of other individuals in the workplace. (Sec. 103(b)). The term "direct threat" is defined by the Act to mean "a significant risk to the health or safety of others that cannot be eliminated by reasonable accommodation." Sec. 101(3)).

⁶ The term "illegal use of drugs" means the use of drugs, the possession or distribution of which is unlawful under the Controlled Substances Act (21 U.S.C. 812). The term does not "include the use of a drug taken under supervision by a licensed health care professional or other uses authorized by the Controlled Substances Act or other previsions of Federal law." (Sec. 101(6)(A)). The term "drug" "means a controlled substance as defined in Schedules I through V of the Controlled Substances Act." (Sec. 101(6)(B)).

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BOOK REVIEW

By

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Criminal Evidence

Jon R. Waltz Nelson-Hall Publishers Chicago, 1991

<u>Criminal Evidence</u> by John R. Waltz is not a book you sit down with for casual reading. It is a textbook designed to give a solid background in evidence law. From a student's point of view, <u>Criminal Evidence</u> provides introductory information on a wide variety of subjects, from sources of law such as judicial opinion, court rules and statutes, to methods of gathering evidence such as studying the grooves made on a fired bullet. The author's aim was to write a book in plain English so that a lay person could read and understand it. Parts of the text are very clearly written. Many other parts consist of "legalese", such as the definition of Hearsay on page 73. The definition provided is a 48-word sentence and must be read more than once to be understood. This and many other sentences, in the book, could have been broken up and made more readable.

Nineteen chapters, on topics such as confessions, competency of witnesses, and impeachment of witness credibility, are broken down well and explained in just enough detail to be interesting.

To provide a sense of the level of detail, consider the eleven page discussion on polygraphy. In this section, Waltz describes: test procedures, sample test questions, equipment, examiner training, a case where the test was found inadmissible, willingness to take the test, confessions during a test, stipulation, accuracy and reliability, 5th Amendment right against self-incrimination, hearsay objection, and polygraphy's future.

<u>Criminal Evidence</u> could be used in a first course in criminal law by upper division college students but may prove challenging for students with no background in law. It would be a better choice for an advanced course. It serves as an excellent reference for those who want a better understanding of legal proceedings in criminal trials or those who want a quick reference to criminal evidence topics.

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EMOTION AND RESPIRATION: A BIBLIOGRAPHY

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Excerpts from the book <u>Crime: Its Causes and Remedies</u>, by Cesare Lombroso, M.D. Boston: Little, Brown & Company, 1911.

137. Plethysmography, p. 254

But there is something better in prospect. We have abolished torture, and we may congratulate ourselves upon it. But though this brutal means of investigation more often deceived than gave light, it is still an evil that nothing better has arisen to take the place left empty by its abolition.

Now the knowledge of biological anomalies (anesthesia, analgesia, left-handedness, abnormal field of vision), and of psychological anomalies (the cruelty, vanity, and improvidence of criminals), may help to fill the gap; so also, other data, like obscene and vindictive tattooing, etc. Despine also already suggested the arrest of habitual criminals when they boast that they are going to commit a crime, knowing that in these cases the act follows close upon the word. We have already (in the first volume of my "Homme Criminel") seen how the plethysmograph of Mosso is able, without affecting the health and without pain, to penetrate into the most secret recesses of the mind of the criminal.¹ I have myself made use of this instrument in a complicated case, proving that a certain well-known criminal was not guilty of the crime with which he was accused, but was guilty of a theft, at first connected with him by this test alone, but later brought home to him by judicial investigation.

¹ The plethysmograph is a device for testing variations in the circulation of the blood, and rests for its usefulness upon the way the circulation responds to what is passing in the mind.--Translator. [Harry P. Horton, M.A.]

The reference to his book is <u>L'homme criminel</u>, 2d ed., Vol. I. Felix Alcan, edit., Paris, 1895. Volume II was published the same year. Apparently the first edition was published in 1888, also by Felix Alcan in Paris. [Ed.]

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243. Application to Psychiatric Expert Testimony, p. 435

Medical experts and practical penologists who have studied criminal anthropology have become convinced of the value of this science in recognizing the real culprit and in deciding how far an accomplice has participated in a crime. Hitherto these things have had to be determined from unreliable indications, such as prison confessions and vague official information.

I will cite as proof of this the following examples: 1. Bersone Peirre, 37 years of age, well known as a thief, had been arrested under charge of having stolen 20,000 francs upon the railroad. In prison he

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feigned madness, pretending that someone had poisoned him. It was soon plain that he had committed many other thefts, since he was found in possession of a number of documents and passports, among others that of a certain Torelli. The result of an anthropological examination was as follows: mean cranial capacity, 1589 c.c.; cephalic index, 77; type of physiognomy, completely criminal; touch, nearly normal -- tongue 1.9 mm (between points perceived separately), right hand, 2-3 left hand, 102 (with sensorial manicinism); general sensibility and sensibility to pain, very obtuse - 48 mm. and 10 mm. respectively, on the adjustable Rhumkorff coil, as against 61 mm. and 24 mm. for the normal man.

An investigation with the hydrosphygmograph¹ confirmed me in my observation of his great insensibility to pain, which did not change the sphygmographic lines. The same apathy persisted when he was spoken to of the robbery on the railroad, while there was an enormous depression - a fall of 14 mm. - when the Torelli theft was mentioned. I concluded, therefore, that he had no part in the railway robbery, but that he had certainly participated in the Torelli affair; and my conclusions were completely verified.

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ABSTRACT

Language and Testing

H.M. Bond & T. M. Lai (1986). Embarrassment and code-switching into a second language. <u>Journal of Social Psychology</u>, <u>126</u>(2), 176-186.

Second languages are typically mastered in less emotional settings than are first languages. Consequently, it may be assumed that less arousal will be conditioned to second-language words.

In this research, Chinese undergraduate students interviewed one another in Chinese (Cantonese) and in English to test this hypothesis. As predicted, interviewees answered questions on embarrassing topics, compared to unembarrassing topics, at greater length in their second language, suggesting that code-switching may serve as a distancing function. Thus, bilingual persons may express ideas in their second language that which would be too disturbing in their primary tongue. For polygraph examiners, this suggests that persons who are tested in their second language may tend to be hypo-reactive, despite full comprehension of the test. The hypothesis needs research with polygraph tests, and with more than one culture and language before it is given much credence.

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 $^{^{1}}$ An instrument by which tracings of the pulse and alternations in the volume of the members under the influence of emotion may be obtained, and which expresses in millimeters the psychic reaction.