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POLICE SCIENCE

THE POLYGRAPH EXAMINATION AS A MEANS FOR DETECTING TRUTH AND FALSEHOOD IN STORIES PRESENTED BY POLICE INFORMANTS

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The purpose of the present study was to evaluate the effectiveness of the polygraph examination as a means for discriminating true from false items in the information presented to law enforcement agencies by police informants. The study may be viewed as one test of the validity of the polygraph as a means of determining facts in narratives relating to criminal events.

The experienced law enforcement officer will recognize the present study as a "practical" one (3). Persons who work as informants (otherwise known as agents, operators, finks, rats, special employees, stoolies, snitches, or informers) can provide information useful to the police in the investigation of criminal acts—or in warning of impending acts. There is an increasing tendency—unless interrupted by new court decisions on the rights of those suspected—to use informants in those areas where police personnel themselves either cannot operate or where direct investigation is slow or excessively dangerous.

Informants vary considerably in their traits and in their relationship both to the police and to the suspects about whom they give information. Some informants may be ordinary citizens who having witnessed an event report it to the police. Others may be participants in criminal acts who betray their associates; others may be on the fringe of criminality and are in a position to make continuing observations of suspicious persons or activities.

The information given is not always accurate; frequently it is a lie. The reasons for lying can be

many. For some informants the risk of telling the truth is immense; their associates will kill them. For others the lie may simply serve to earn a fee (they are usually paid by the police), to placate an officer (who may threaten them if they do not deliver), to alibi for themselves or others, to obtain vengeance or because of psychopathological fantasies about themselves or others. The point here is not to catalogue all the reasons that an informant may lie to the police, but only to stress the risk of misinformation coming from this particular group. Consequently, the high potential value of good information is offset by the high risk of its being false either in its entirety or in crucial details.

Given both the value and the risk associated with informant stories, and given the costs in time and effort in running down leads presented, it would be desirable to have a means for assessing the truth or falsehood of the stories told. The polygraph or "lie detector" immediately presents itself as a possible assessment device. No prior research has been reported on the use of the polygraph in informant story evaluation; there has been a good deal of experimental work (4) on its usefulness in detecting true from false statements among research subjects. In laboratory settings its discriminating capacity (or rather, the examiner using it) has been demonstrated. The polygraph examination, of course, has been widely used in practice in the interrogation of criminal suspects. However, as Sternbach, Gustafson and

Collier (7) have observed, the claims for its value often go considerably beyond the evidence.

POPULATION

Twenty subjects gave information to the polygraph operator and were interrogated by him. Three were female and seventeen male. An informant is defined as a person not in law enforcement who has in the past given information to the police which bears on the investigation (or anticipation) of criminal acts. Among our sample all informants had given information on more than one occasion and were considered by their officer contacts to be regular informants. Thus the informant population studied here excludes the ordinary citizen who sees an event and reports it. The sample was obtained by contacting five law enforcement agencies (two federal, one state, two local) in the same metropolitan area. Those administrators or field supervisors willing to cooperate involved their staff investigators (including in some cases patrol level personnel) in the study, asking them to bring in those informants of theirs who would be willing to work (for pay). The sample itself represents a selection process with unknown bias. The investigators themselves had to be interested enough to ask their informants to work and confident that the study would not jeopardize the officer-informant relationship and that it would not place the informant himself in jeopardy. The informant in turn had to be willing to work and to appear in a central police facility for examination. The difficulty in gathering such a sample cannot be under-estimated; some informants are in jeopardy of life should it be known that they are giving information to the police. Every effort was made to protect them; examinations were held in the evenings, entry into the police facility was concealed whenever necessary, no correct names were ever employed, and the polygraph examiner was prohibited from making inquiries about the subject beyond those of narrative factuality required by the study.

The topics about which the informants ordinarily gave information varied, but included bookmaking, robbery, vice, theft, political extremism, homicide, kidnapping, etc. Because of the possibility of added difficulty in deception detection introduced by informants on drugs at the time of polygraph examination, narcotics informant use was deemphasized even though such informants reportedly comprise a large segment of the total informant population. Consequently

only three informants in narcotics cases were used.

PROCEDURES

Selecting true and false items. The initial procedure was to instruct the informant as to what story he would tell the polygraph examiner. Some stories would be true, some false, some would contain both true and false items. A true story was defined as one which the informant had told his officer contact before and which upon investigation by the officer had been determined to be correct. Our initial wish to make a court verdict (conviction) the final criterion of truth had to be abandoned since many of the stories told had led to investigation but not to arrest for the acts described. Consequently, the criterion of truth was the final report of the investigation by the contact officer or other police investigators resulting from the follow-up on the original information. A false story was one which was jointly invented by the officer and his informant in preparing for the polygraph examination. False stories were required to be compatible with the informant's ordinary role and observational opportunities; false stories utilized credible background items, times, places, jobs, types of associates, and so forth. True stories with some false items followed the same rules; the true story was a story told in the past and confirmed by police investigation; its false elements were agreed upon in advance by the officer and his informant. The guiding rule in creating false items in an otherwise true story was that they should be compatible with the larger true story, that they should deal with critical points of fact (facts important to any investigator pursuing the story; for example, name of offender, place where goods were hidden or fenced, etc.) and that the false items would be one where the informant might have had a good reason to lie had the actual circumstances been slightly different (that is, a latent motive for lying might exist; for example, in order to protect himself, to implicate an enemy or competitor, to keep the investigator from focusing on other friends, etc.).

Once the officer and his informant had agreed upon a story it was written and rehearsed. A copy of this written "public" story was kept by the informant, another copy was given to the research coordinator who in turn transmitted it to the polygraph operator. Because the polygraph examination cannot cover, in one or two hours, a

large number of different points, the contact officer designated—either by underlining or by listing—the important (critical) points upon which the operator was to focus during the interrogation. These were five or six points which the polygraph operator attended to in building up his interrogation plan.

A second story was also submitted whenever the “public” story was wholly or partly false. The second story constituted a true statement and indicated for each critical item whether or not it was true or false. The true story was kept by the research coordinator but was never seen by the polygraph examiner.

The polygraph examination was restricted to two hours. The polygraph examiner conducted a routine pre-polygraph interrogation followed by questions asked while the subject was attached to the instrument. The polygraph operator was a trained police professional and a member of the state polygraph examiner’s association. His instrument was a Stoelting three channel desk model.

Upon completion of the polygraph examination the operator wrote a report in which he stated whether or not a deception was inferred from the polygraph tracings on each of the critical items in the stories told. It is important to note that unlike most polygraph procedures in criminal investigation—interrogation or in personnel selection and monitoring where admissions of misconduct constitute a bulk of the polygraph examination findings and where confessions are frequently obtained, as measures of success, the present procedure allowed for no admissions. Subjects were instructed not to “cop out,” not to make admissions, and consequently all of the judgments made by the polygraph operator about the truth or falseness of statements are based on inferences from polygraph tracings plus whatever interpersonal cues (behavior, voice intonation, etc.) including inadvertent inconsistencies (verbal or behavioral) the examiner was able to utilize.

RESULTS

Consider gross results first. How often is the polygraph examiner able to identify a true story as such and how often is he able to infer, correctly, that false statements have been included in a story? Table 1 below presents the findings.

Table 1 shows a perfect association between the actual story and the ability of the polygraph operator to identify the story either as true or as containing at least one false item. The data in

TABLE 1
IDENTIFICATION OF STORIES AS TRUE OR FALSE

	Identified as All True	Identified as at Least Partly False
All true in fact.....	9	0
At least partly (or all) false in fact.....	0	11

Table 1 does *not* allow the statement that the examiner makes no errors; as will be seen later, errors are made. What Table 1 shows is that in all stories wholly true the examiner made no errors by designating true items as false. It also shows that in every story which contained one or more false statements the examiner correctly identified at least one statement as false. The rationale for presenting the data in this form is a practical one; if an informant is found to be lying on at least one critical point in a story, investigators will have good reason to inquire further about his motives and trustworthiness.

Applying Fisher’s Exact Test to the data in Table 1, we find that $P = 6 \times 10^{-6}$ (.0000006), which indicates a strong positive association between the conclusions of the polygraph examiner and the actual true or false status of the stories.¹

Table 1 provided an overall picture. We now turn to the data showing how the polygraph examiner judged each critical statement in each story. Table 2 below, presents, by case, the judgment record of the examiner. The first two columns show correct judgments; actual truth judged to be truth, actual lies judged to be lies. The second two columns show erroneous judgments; truth judged to be lies, and lies taken for truth. For scoring purposes the examiner judgment of “inconclusive” is coded as an error.

From Table 2 one sees that 102 were correctly designated on the basis of polygraph examiner inferences from tracings (plus whatever interpersonal cues may also have been used) and four were incorrectly designated. In terms of percentage of statements about which the examiner made an error, this is 4%. In terms of number of subjects whose stories were incorrectly evaluated in part, it is 15%.

The interpretation and statistical analysis of this data is complicated by several considerations. The

¹ The authors are in debt to Dr. David Hoel, Department of Biostatistics at Stanford University for his services as statistical consultant.

TABLE 2
ITEM JUDGEMENTS BY POLYGRAPH EXAMINER FOR EACH SUBJECT

	Correct Inferences		Incorrect Inferences	
	Actual Truth Judged to Be True (Col. 1)	Actual Lie Judged to Be Lie (Col. 2)	Actual Truth Judged to Be Lie (Col. 3)	Actual Lie Judged to Be True (Col. 4)
Jane Doe #1.....	4	4	0	0
Jane Doe #2.....	5	0	0	0
Jane Doe #3.....	2	3	0	0
John Doe #1.....	5	0	0	0
John Doe #2.....	2	2	0	1
John Doe #3.....	5	0	0	0
John Doe #4.....	4	1	0	0
John Doe #5.....	2	1	1	1
John Doe #6.....	1	3	0	1
John Doe #7.....	5	0	0	0
John Doe #8.....	5	0	0	0
John Doe #9.....	0	7	0	0
John Doe #10.....	5	0	0	0
John Doe #12.....	6	0	0	0
John Doe #14.....	0	5	0	0
John Doe #15.....	0	5	0	0
John Doe #16.....	0	5	0	0
John Doe #18.....	5	0	0	0
John Doe #19.....	2	3	0	0
John Doe #20.....	5	0	0	0
Total = 106 statements	63	39	1	3

We see that all examiner errors (incorrect inferences about four statements made by three subjects) occur in stories where there is a mixture of true and false items. No errors are made when stories are all true or all false. Applying Fisher's Exact test we find $P = .03$, and this shows a positive association between correct examiner inference and the absence of a mix of truth and lies within a story.

COMMENT

Examined either in terms of overall story designation as true or all- or partly-false, or in terms of item-by-item inference accuracy, the polygraph examiner has done very well, certainly better than a chance expectancy statistically. This finding suggests that the polygraph examination can be a useful tool in assessing deception attempts in stories brought in by police informants. As one test of the validity of the polygraph, the study offers support for the contention that deception efforts can be detected by means of the polygraph.

One should be cautious about the generalization from these findings. The informants who were subjects in the study were all willing to cooperate with the police in what was essentially a game of "try to beat the box." One cannot say whether or not the cooperative intent of the subjects was not expressed in minor cues that led to examiner success. The findings of Rosenthal (1963) on "experimenter effect" and of Orne (1962) on the "demand characteristics" of experiments remind one that cooperative subjects do tend to come up with the results one wants even if everyone tries to play the game straight. How these informants differed from others is unknown. It is possible that investigators brought in the "tamest" ones whom investigators themselves had pre-selected as "good" subjects, and that the uncooperative informants might be better able to practice deception.

On the other hand a number of factors in the experimental situation mitigated against examiner success. Polygraph examiners and investigators in psychophysiology (1) have usually agreed that deception and detection success should increase when the subject is emotionally aroused, and preferably in conflict about the outcome and risks of lying and winning, lying and being caught and the risk of confessing. In this experimental situation "real life" outcome was inconsequential, there were no risks, and emotional arousal could not be assumed. In addition, interrogation time was limited, "inconclusive" findings were treated as

first is the problem of the non-independence of items. We have seen from Table 1 that whenever a story was totally true, no errors of any kind were made in classifying statements as true or false. This suggests that factors broader than the item itself may influence the success of the examiner in detecting lies. To test for the possibility that total story truthfulness, total story falseness, and the "mix" of both true and false items may be one determining factor in examiner success (Table 3).

TABLE 3

	Examiner Inferences	
	Correct	Incorrect
Number of subjects telling:		
All truth or all lies.....	13	0
A mix of truth and lies.....	4	3

errors in data analysis, control questions by the examiner were not employed, general questioning was not allowed (because the real identity of these working informants had to be protected), and other restrictions on examiner conduct obtained. That the examiner achieved success in spite of these restrictions is worth noting, although such success is in keeping with the results of other polygraph experiments using non-apprehensive subjects in restricted game-playing situations (2, 4).

The present study has made no effect to identify factors other than the true-false story "mix" which contribute to examiner success or error. Future studies might well attend to subject-examiner interaction, to inter-examiner differences in reliability, and to the nature of interpersonal cues to which the examiner becomes sensitive. Orlansky's monograph suggests a number of other important research areas.

SUMMARY AND CONCLUSIONS

A study was undertaken of the ability of the polygraph examination to identify correctly true and false items in stories brought in by police informants. Twenty informants gave information. All true items of information were repetitions of earlier stories which the informant had given and which had been verified by follow-up police investigation.

The results showed that all true stories were correctly identified as such and that all stories containing one or more false items were correctly identified as containing false items. This association between polygraph examiner judgment, in a technique allowing for no admissions or confessions by the subject, and overall true or false content of the

informant's story is statistically significant. Errors were made within stories in discriminating the truth and falseness of separate items; of a total of 106 statements 102 were correctly designated as true or false and 4 incorrectly designated. When the "mix" of all true, both true and false, and all false stories is related to polygraph examiner error, it is found that all erroneous examiner inferences (failure correctly to identify a statement as true or false) were in response to stories containing both true and false information. When stories were all true or all false, no examiner errors occurred. This association was significant at the .05 level.

It is the conclusion of the study that the polygraph examination can be a useful tool in evaluating information brought in by police informants.

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