Behavioral Roots of Person Perception: The Deception Judgments of Customs Inspectors and Laymen

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Typically, person perception research requires subjects to make inferences about others on the basis of verbal descriptions while it denies them the physical cues which may underlie many social judgments. In contrast to this traditional paradigm, we tried to assess the physical cues that people use in a social judgment and to examine the generality of their use across perceivers. Professional inspectors in the U.S. Customs Service and laymen judged whether they wanted to search airline passengers going through a mock customs inspection. An analysis of travelers' demographic characteristics and verbal and nonverbal behaviors showed that judges' decisions to search travelers were based primarily on the travelers' comportment. Comportment both mediated the effects of demographic characteristics and had direct effects on decisions. Twenty-one variables accounted for 72% of the variance in search decisions, and 6 variables accounted for 60% of the variance. Bivariate analyses show that travelers were most likely to be searched if they were young and lower class, appeared nervous, hesitated before answering, gave short answers, avoided eye contact with the interviewer, shifted their posture, and had taken pleasure trips. Individual differences among judges—inspectors versus laymen, successful versus less successful inspectors, and high self-monitors versus low self-monitors—had little effect on the cues they used. The results demonstrate the value of a social psychophysical approach to person perception that focuses on the behavior of the perceived.

According to social psychological dogma, our behavior toward others is based on our perceptions of their motives, temporary states, and stable characteristics. Numerous studies of attribution and person perception are based

on this article of faith. However, the typical paradigm in attribution and person perception research is to provide judges with verbal descriptions and to examine the inferences they make. (See Schneider, Hastorf, & Ellsworth, 1979, for an overview.) The physical cues underlying social perception have been long neglected, despite several isolated exceptions (e.g., Berscheid & Walster, 1974; Ekman & Friesen, 1978; Meltzer, Morris, & Hayes, 1971; Secord, 1958). Given this neglect, the traditional paradigm presents at best a limited account of person perception by failing to show how people derive symbolic information from their observations of the world; that, is, it ignores the first step in person perception. At worst, the traditional paradigm presents a false account, if perceivers process imposed information differently from information they must glean for themselves (D'Andrade, 1974). For example Ebbesen and Konečni (1975) have

shown that the decision rules that felony court judges use to set bail in a standard, factorial person perception study are very different from those they use in setting bail in actual cases.

Of the many person attributes that influence our behaviors towards others, a number of theorists have argued that perceptions of sincerity and truthfulness are fundamental. For example, much of face-work and self-presentation involves creating the illusion that we are identical to the roles we play and that we are adequately meeting the expectations associated with these roles, whether we believe in them or not (Goffman, 1955, 1959). In the specific case of ingratiation, for example, Jones and Wortman (1973) argue that tactics such as self-presentation, flattery, or opinion similarity will fail unless the target of the ingratiation attempt sees them as sincere. Working within the traditional paradigm, Jones and his colleagues have shown, for example, that obvious ulterior motives make ingratiation attempts less successful (e.g., Jones, 1964).

Research on humans as lie detectors has burgeoned in recent years, but most of it has followed the psychophysiological model and has either asked whether subjects are accurate (e.g., Geizer, Rarick, & Soldow, 1977; Manaugh, Wiens, & Matarazzo, 1970; Matarazzo, Wiens, Jackson, & Manaugh, 1970) or searched for the verbal and nonverbal cues, especially stress cues, that distinguish liars from truth tellers (e.g., Cutrow, Park, Lucas, & Thomas, 1972; Hemsley, 1977; Mehrabian & Ferris, 1967; Morris, 1977; Streeter, Krauss, Geller, Olson, & Apple, 1977; Hemsley & Doob, Note 1).

If one wants to learn about person perception, however, questions about accuracy and cues that discriminate truth and deception are less interesting to study than are questions about the cues observers use to judge deception, regardless of the validity of these cues. Yet these questions have been relatively neglected. In both correlational and experimental studies, Krauss and his colleagues and Kraut have shown that aspects of a liar's performance such as voice pitch, response latency, verbal fluency, self-grooming, and plausibility can influence judgments of deception (Apple, Streeter, & Krauss, 1979; Kraut, 1978;

Krauss, Geller, & Olson, Note 2). And Ekman and Friesen (Ekman 1965; Ekman & Friesen, 1967, 1969, 1974) have shown that observers make better judgments when viewing the liars' bodies rather than their faces and heads. However, Feldman (1976) failed to confirm a related hypothesis.

Although the research by Ekman and Friesen, Krauss et al., and Kraut is an important first step, it is limited. Many of the factors that these authors believe underlie judgments of deception, such as seriousness, empathy, and nervousness, are themselves complex inferences; the substitution of one unknown judgmental process for another is not an advance. In addition, the research is very artificial. For example, in Krauss et al.'s and Kraut's research, students lied on biographical interviews in which they had little stake, and observers with little experience and expertise judged the deception. Because these student liars were unlikely to be experiencing the excitement, fear, or guilt normally associated with deception in other settings, they may not have shown behaviors typical of deception. In turn, observers may have been forced to rely on cues that they believed were unrepresentative of deception, because their preferred cues were absent. Ekman and Friesen's (1974) research was more realistic. Student nurses tried to conceal an unpleasant emotion and believed that this ability was job related. However, this research is flawed, since deception was confounded with the stimulus-generated emotions. Thus the cues that observers used in this study to judge deception may have been the cues they normally use to judge emotions independent of deception. A major goal of the present research is to examine the physical and other cues that observers use to judge deception in a setting that is realistic but in which deception is not confounded with emotion.

A second goal of the present research is to examine the generality of the perception of deception. Ekman and Friesen (1974) found that untrained observers could not identify nurses who attempted to simulate a pleasant emotion when they observed the nurses' faces but could when observing their bodies. However, trained observers could make accurate judgments from observation of the face, which implies that they used different cues to recognize deception than did lay observers. Krauss

et al. (Note 2) and Geizer, Rarick, and Soldow (1977) reported that high self-monitors (Snyder, 1974) were more accurate at judging deception than were low self-monitors. This may also suggest that observers who differ in social sensitivity may use different cues in judging others or may weigh or combine them differently.

Method

Overview

With these goals in mind, we constructed the present study to examine the verbal and nonverbal cues that judges use to make deception decisions. To make the task realistic and to ensure an adequate and diverse sample of liars, we conducted mock customs inspections in which a variety of airline passengers tried to smuggle contraband past a U.S. Customs inspector. To motivate travelers, we offered them prizes of up to $100 for appearing honest. Judges watched the interrogations on videotape and decided whether each traveler should be searched. We then correlated a number of characteristics and behaviors of the travelers with the judges' decisions. We conducted further analyses to examine three individual difference variables of the judges that were likely to influence their use of cues: occupation (customs inspectors versus laymen), prior performance (successful versus less successful inspectors), and a personality trait related to social perception (high versus low self-monitors).

Deception Stimuli

The stimuli for our deception study were videotaped records of mock customs inspections in which an official U.S. Customs inspector interrogated airline passengers. The passengers were 110 volunteers who were waiting for or departing from Allegheny Airlines flights at the Syracuse, New York, Hancock Airport.

After filling out a demographic questionnaire and a shortened version of the Self-Monitoring Scale (Snyder, 1974), passengers were randomly assigned to a smuggler or innocent traveler condition and challenged to pass through a mock customs inspection without being selected for search. They were interrogated as they stood at a small table at waist height. All travelers were told to behave as they would when going through customs. Because most travelers were on domestic flights, they described either a previous international trip or the present trip while pretending that their destination or point of departure was across a national border. Travelers who were "smuggling" were of course required to lie if the inspector asked what they had to declare, since they could not reveal the presence of the contraband, but otherwise travelers were advised to tell the truth.

Although travelers knew that they were participating in a simulation, several aspects of the procedure heightened their involvement and made the simulation more realistic. First, the interviewer for the inspections was a uniformed U.S. Customs inspector, who used his standard interrogation technique. Second, instructions stressed the impression management skills travelers would need to appear honest in a customs inspection:

> I don't know how they do it, but we've found that some people are very skillful and never get searched, and others seem less skillful. This is probably the same sort of skill that makes some people good salesmen and allows people to make a good impression and deal well with others.

Third, smugglers were given small pouches of white powder, a miniature camera, and so on and were asked to hide the contraband somewhere on their persons. Finally, we instituted sanctions for poor performance. All travelers were given a $2.50 stake before the interview, which they could either double—if they were successful in convincing the inspector of their honesty and were not selected for a search, regardless of whether they were actually carrying contraband—or lose, if the inspector decided to search them. In addition, travelers competed for a $100 prize to be awarded to the most convincing traveler, as rated by judges watching the interrogations on videotape.

In short, the experimental procedures attempted to motivate travelers to present themselves as honest citizens with nothing to hide, regardless of whether they were smuggling, since this is how people going through real customs interviews are motivated.

We selected 62 of the interrogations to eliminate those of poor technical quality and to retain a diversity of traveler characteristics. The final sample contained 31 smugglers and 31 nonsmugglers, 18 females and 44 males (a ratio representative of the entire tape population), ranging in age from 18 to 77 years, with a wide range of occupations. The interviews were arranged in three presentation orders, with interviews randomized in blocks of five for each of the final stimulus tapes. Each stimulus tape lasted about 1 hour.

Stimulus Characteristics

Since both preliminary interviews with inspectors and the prior literature on cues to deception (e.g., Knapp, Hart, & Dennis, 1974; Kraut, 1978; Mehrabian & Ferris, 1967) suggested that judges may use the following cues to determine whether a traveler is lying, data were collected on each of these cues.

Demographic and background characteristics. (a) Age. (b) Sex: Female was coded 0; male was coded 1. (c) Occupational status: Travelers' occupations, reported on the pre-interview questionnaire, were coded according to an occupational status scale developed by Goldthorpe and Hope (1974), with scale values ranging from 1 (low occupational status) to 36 (high occupational status). Students and housewives were assigned the sample mean. (d) Times through customs: Each traveler's pretest statement of the number of times (from 0 to more than 10) he or she had previously been through a customs inspection was recorded on a 6-point scale. (e) Business trip: In response to the interviewer's question did the traveler say the purpose was business

(coded 1) or other (coded 0), including vacation, pleasure, or visiting family? (f) Length of stay: A log transform of the length of the trip in days was calculated. (g) Messiness of dress: Coders' ratings on a 9-point scale, where 1 meant neatly dressed and 9 meant sloppy, were recorded (3 judges; reliability $r = .93$). This measure correlated .77 with the coders' judgments of perceived social status.

Verbal and nonverbal comportment. (a) Grooming: The number of seconds during which the traveler touched his or her own face or body, scratching, smoothing, patting, and the like, was divided by the length of the interview (2 coders; $r = .93$). (b) Postural shifts: The number of times the traveler shifted his or her weight from one foot to another or swayed forward or backward was divided by the length of the interview (2 coders; $r = .68$). (c) Relaxed posture: Coders rated the traveler's posture and stance on a 9-point scale, where 1 meant stiff and rigid and 9 meant relaxed and fluid (3 coders; reliability $r = .71$). (d) Smiling: The number of seconds during which the traveler smiled was divided by the length of the interview (2 coders; $r = .90$). (e) Gaze avoidance: The number of seconds during which the traveler looked away from the inspector was divided by the length of the interview (2 coders; $r = .90$). (f) Illustrators: The number of seconds during which the traveler made a gesture to illustrate or accompany his or her speech was divided by the length of the interview (2 coders; $r = .56$). (g) Speech errors: The number of sentence changes, repetitions, stutterings, omissions, incomplete sentences, tongue slips, and incoherent sounds in a traveler's answer was divided by the length of the interview. Definitions of specific speech errors are available in Kasl and Mahl (1965). (h) Response latency: Time from the inspector's question to the traveler's answer was averaged over all questions asked a traveler. (i) Response length: The number of words travelers gave in response to each question was averaged over all questions asked a traveler. (j) Interview length: The number of question and answer exchanges between the inspector and the passenger was recorded. (k) Evasiveness: The number of replies in which the traveler failed to answer a direct question was noted (2 coders; $r = .50$). (l) Volunteering information: The number of answers in which the traveler gave more information than was asked for by a question was divided by the number of questions (2 coders; $r = .85$). (m) Nervousness: Coders rated the traveler's nervousness on a 9-point scale, where 1 meant the traveler was much less nervous than average and 9 meant much more nervous than average (7 coders; reliability $r = .71$). (n) Difficulty in answering: Coders' ratings of the difficulty the traveler appeared to have in answering a question were recorded on a 9-point scale, where 1 meant the traveler had a much easier time in answering questions than average and 9 meant a much harder time answering than average (5 coders; reliability $r = .75$).

All stimuli were coded on the basis of a minimum of information in an attempt to make judgments independent. Thus, age, sex, occupation, and times through customs were recorded from a demographic questionnaire; purpose of trip, length of stay, response length,

volunteering information, and evasiveness were coded from exact transcripts of the interviews; response latency and speech errors were coded from audio records supplemented by transcripts; and posture, dress, gaze, grooming, illustrators, postural shifts, and smiling were coded from the video image only, the last five through the use of event recorders.

In summary, we have an accurate and objective, although not necessarily complete, profile of each traveler along a number of demographic, verbal, and nonverbal dimensions. These profiles can be used in a correlational analysis to predict judges' decisions to search a traveler or not, in order to discover the cues that were influencing judges.

Judges

One of our goals was to see whether people who should differ in skillfulness in judging deception also differed in the way they made their deception decisions. The first comparison was between U.S. Customs inspectors, who are professionals at detecting deception, and laymen. The 39 inspectors were from three upstate New York ports of entry, where the travelers they see are similar to those on the stimulus tapes. They included 34 males and 5 females who had from 1 to 30 years of experience as inspectors ($M = 8.8, SD = 6.9$). The 49 lay judges were recruited through advertisements in an upstate New York newspaper. Students and anyone under 21 years of age were excluded. The resulting group of 29 females and 20 males ranged in age from 21 to 55 years and represented a wide range of occupations.

The second comparison was between inspectors who were especially successful at their job and those who were less successful. Presumably, inspectors who are successful at catching smugglers should be more sensitive to valid cues to deception than are less successful inspectors. A condition of customs inspectors' participation in this research was their anonymity, and as a result, all measures of job success on these inspectors were self-reports. Four measures of self-reported success on the job were standardized and combined into a success-at-detection scale: an inspector's self-rating of his or her skill compared to other inspectors at the same port (13-point scale ranging from much worse than average to much better than average); the number of petty seizures (less than $500) the inspector was responsible for in the preceding year ($M = 7.7, SD = 11.4$); the number of major seizures (greater than $500) the inspector had been responsible for in the preceding year ($M = 1.2, SD = 2.8$); and the amount in fines the inspector was responsible for collecting the previous year ($M = \$1,722, SD = \$3,920$). The mean correlation among these variables was .35. Successful inspectors were those above the median on this scale; less successful inspectors were those below.

The third comparison was between judges, both professional and lay, who differed on their self-monitoring scores (Snyder, 1974). Self-monitoring is a concern with the situational appropriateness of behavior and a sensitivity to one's own and other's expressions and self-presentation. Travelers had filled out a shortened version of the self-monitoring scale, composed of the six

questions with the highest discrimination (Snyder, 1974, Table 1). Judges completed the whole self-monitoring scale and were divided into high and low self-monitors on the basis of a median split.

Judgment Task

Judges watched the videotaped inspections on small, individual video monitors in groups of one to four. The video image consisted of a close-up of the traveler's head and shoulders on one half of a split screen and a longer shot to midthigh on the other half. The interrogating inspector did not appear on screen, and his judgment about each traveler was edited from the tapes. Judges were given an accurate description of how the tapes were made and were reminded that approximately 50% of the travelers had carried contraband. All judges were instructed to indicate the travelers who made them most suspicious and whom they would have liked to interrogate or search further. Inspectors were further told to use whatever characteristics, answers, or behaviors they would use to search travelers on their jobs, except that some information, such as the amount of baggage or an examination of passports, would be unavailable because of the simulation. They were given 10 sec between each videotaped interrogation to indicate whether they would like to search a traveler (-1 = no, and 1 = yes), to indicate their confidence in their decision on a 3-point scale (1 = guessing, 3 = very confident), and to mention any salient behaviors or attributes that made them suspicious. Multiplying the search decision by the confidence judgment changes the dichotomous search decision into a 6-point scale, which we then used in all analyses.

Results

Overview

Travelers who were given contraband were good liars; both customs inspectors and laymen were less suspicious of them than of travelers who were not carrying contraband. We cannot, however, describe the ways in which smugglers acted differently from other travelers; they did not differ from other travelers on any characteristic we measured. On the other hand, some of the travelers going through this experiment behaved in ways that fit judges' conceptions of a smuggler and others acted in ways that appeared innocent; judges reached consensus on many of the travelers, and we could combine the travelers' verbal and nonverbal behavior to accurately predict judges' decisions about them. Finally, both professionals and laymen, good inspectors and bad inspectors, high self-monitors and low self-monitors agreed on which travelers they suspected and the cues on which they based their judgments.

Accuracy of Judgments

Both customs inspectors and laymen were inaccurate at judging when a traveler was carrying contraband, when accuracy is the Pearson correlation between travelers' carrying of contraband and judges' mean decision to search them. The correlation over all judges was $-.22$ ($p < .10$) and was $-.25$ for lay judges ($p < .05$) and $-.14$ for customs inspectors ($p < .10$). The negative correlation indicates that judges were less likely to search a traveler carrying contraband.[1]

Truth–Lie Differences in Behavior

Although travelers carrying contraband must have acted differently from other travelers for judges to have been less suspicious of them, none of the behaviors we measured reflected this difference. We performed a multiple regression analysis in which the background characteristics and the comportment behaviors listed above were regressed against a traveler's carrying of contraband. This is equivalent to a multivariate analysis of variance, asking whether the experimental manipulation had an overall effect, taking into account the interrelation among dependent variables. The manipulation had no effect, $F(21, 40)$ = $.78$, $p > .50$. These results are confirmed in the bivariate analyses showing no background, verbal, or nonverbal cue associated with a traveler's carrying of contraband.

At first glance the failure of both judges and regression analyses to identify mock smugglers seems surprising. It is possible that the mock smuggling task used here was sufficiently different from real smuggling to make the results understandable. First, travelers were probably nervous as they were filmed going through a novel procedure. Second, despite our efforts, the monetary consequences we could control in this simulation were trivial compared to the delays, embarrassment, fines, and even imprisonment that the customs service routinely controls. Third, since contraband was assigned to travelers

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[1] High self-monitors and low self-monitors were equally good liars. The correlation between travelers' self-monitoring score and judges' decisions to search them was $-.06$, $p > .20$.

randomly, judges could not use the demographic characteristics that may normally differentiate self-selected smugglers from innocents. If true, this implies that differences in behavior and background between mock smugglers and innocents were likely to be small, perhaps unrelated to those that characterize real smugglers, and unrelated to the cues we measured. In addition, even if there were behavioral differences between mock smugglers and innocents, judges had only an impoverished stimulus interview on which to base their decision (e.g., the interviews were videotaped, and judges could not ask their own questions).

The argument that our experimental procedures were too artificial to generate behavioral differences among travelers is contradicted by a long research tradition in the psychophysiology of deception. Numerous studies using deception tasks far more artificial and trivial than those used here have evoked sufficient stress, guilt, fear, concentration, or other psychological states to cause reliable changes in cardiovascular, respiratory, and skin conductance measures (Podlesny & Raskin, 1977). Investigators using polygraph equipment can detect deception with high (85%–95%) accuracy (Raskin & Podlesny, 1979). Our procedures, which placed airline passengers in a realistic behavioral simulation and provided them with monetary and self-esteem incentives for success, undoubtedly intensified both those psychological states that account for physiological changes in polygraph research and subjects' motivation to succeed.

Many other studies of humans as lie detectors besides ours have failed to find either high naive judge accuracy or valid, easily observable cues to deception. Most studies of nonautomated lie detection have found low accuracy ($M = 57.4\%$ with a 50% chance rate) using tasks comparable to those in which machine-assisted lie detection achieves high accuracy (Kraut, in press). In addition, no easily observable cues strongly predict deception across studies, whereas a number of covert, psychophysiological cues do (Kraut, in press).

We do not believe that a lack of realism in human lie detection studies compared to polygraph studies provides the explanation for these differences in results. Rather, it is more plausible to believe that through a process of

feedback and adaptation, liars have become able to control many of the external signs of stress, guilt, fear, or concentration that are easily readable cues to deception while not being able to control the covert signs as easily. The processes of adaptation may occur through biological evolution or individual learning. Deception is obviously not the typical case of communication, which favors exaggerated, ritualized, and redundant messages to the benefit of both sender and receiver. In the case of deception, in which a deceiver benefits only if a lie is successful and the deceived benefits only if it is discovered, individuals would have learned not to give away their deception or biological evolution would have selected against blatant cues to deception. Ekman and Friesen's (1974) argument that the more easily readable a cue is, the more it should be subject to control is consistent with this reasoning. This reasoning suggests that researchers looking for universal and easily observable cues to deception are engaged in a futile search.

In any case, the goal of the present research is to describe how people make judgments of deception and to determine whether different types of judges use different decision rules, not to describe smugglers. Therefore, the failure of the judges or the regression analyses to identify smugglers is not worrisome.

Consensus

Even though judges were inaccurate at identifying mock smugglers, they agreed highly among themselves about whom to search and whom to let go. They reached significant consensus on 31 of the travelers—15 search decisions and 16 no-search decisions—whereas 3 is the number expected by chance. Here consensus means 54 or more of the 88 judges came to the same decision about a traveler ($p < .05$ by the binomial expansion). The even split between consensus to search and not to search indicates that this result is not an artifact of judges' bias to be lenient or severe.

Since many observers were making similar decisions about travelers, they must have been basing their judgments on the same or at least correlated cues and processing the cues similarly. Thus the search for the cues and rules they used seems to be worthwhile.

Table 1

Zero-Order Correlations Among Search Decisions and Predictor Variables

Predictor variable	Decisions All subjects	Laymen	Inspectors	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21
1. Business trip	−25*	−21	−23	—																				
2. Length of trip	−18	−19	−14	−38*	—																			
3. Messiness of dress	19	10	24*	−50*	24	—																		
4. Grooming	10	19	−2	11	−7	−18	—																	
5. Postural shifts	29*	35*	15	−1	−36*	6	9	—																
6. Relaxed posture	15	19	7	−31	17	44*	16	25*	—															
7. Smiling	−16	−4	−27*	−26*	10	5	0	14	9	—														
8. Gaze avoidance	26*	31*	15	14	−26*	−11	7	25*	2	7	—													
9. Illustrators	2	−1	4	−1	−14	−5	−2	−9	3	8	28*	—												
10. Speech errors	−14	0	−26*	5	−4	−9	31*	4	−23	33*	−11	−5	—											
11. Response latency	32*	22	38*	−27*	1	12	−1	4	16	−7	21	29*	−10	—										
12. Response length	−28*	−19	−33*	14	−2	−12	30*	27*	−3	38*	−1	7	56*	−6	—									
13. Interview length	−16	−21	−7	11	9	−13	7	−19	4	1	−37*	−16	−9	−42*	−5	—								
14. Evasiveness	23	17	25*	−16	−2	22	12	−8	13	11	−24*	3	36*	12	25*	2	—							
15. Volunteering information	−7	5	−19	11	−3	−14	30*	39*	12	46*	5	1	48*	−10	87*	−2	24	—						
16. Nervousness	54*	51*	47*	−5	8	14	24	−5	−1	−14	4	12	−2	29*	−12	6	21	−3	—					
17. Difficulty in answering	21	7	32*	−12	−7	4	8	−12	−15	−19	−4	15	−11	46*	−7	−13	25*	−15	34*	—				
18. Age	−32*	−26*	−32*	6	−11	−30	−16	−5	−44*	31*	−14	6	35*	−7	39*	0	4	31*	−12	−7	—			
19. Sex	8	−2	16	43*	−31*	−14	4	12	−34*	−25*	18	6	−2	−2	−5	−8	−14	−7	3	−8	−7	—		
20. Status	−33*	−29*	−30*	35*	−2	−21	14	−26*	−28*	5	−10	−3	31*	−25*	21	29*	2	12	−11	−21	34*	10	—	
21. Times through customs	−10	−20	3	12	−11	−21	−23	−12	−27*	−10	15	12	−11	−2	−22	7	−10	−24	−6	−13	20	12	29*	—

Note. For all correlations N equals the number of excerpts, 62.

* $p < .05$.

Observers' Use of Cues

The background characteristics and behaviors we studied predict observers' judgments quite well. Their correlations with observers' decisions to search a traveler are presented in Table 1. A multiple regression analysis shows that these 21 variables taken together account for 72% of the variance in judges' decisions to search a traveler ($R = .85$), $F(21, 40) = 4.89$, $p < .001$. A combination of only three variables—apparent nervousness, postural shifting, and length of answers—can still account for 49% of the variance in judges' search decisions, and the combination of only six—nervousness, length of stay, trip purpose, average length of an answer, volunteering information, and the traveler's age—can account for 60% of the variance.

Inspectors had told us that they were sensitive to any violation of typical behavior,

being suspicious of the traveler who appeared too calm as well as the one who appeared too nervous. However, this was not the case for our data. No cue was curvilinearly related to judges' decisions to search travelers, once the linear effects reported above were held constant.

The influences on judges' decisions can be understood more clearly by making a number of distinctions. Their decisions to search could be based on at least two factors. Judges can have beliefs, formed prior to the actual inspections, about the likelihood that certain classes of travelers are smugglers. These classes are based on stable background and demographic characteristics such as age, sex, race, and social class and can be perceived directly or inferred from some of the travelers' answers and behavior, such as dress or business travel. We call these sources of influence
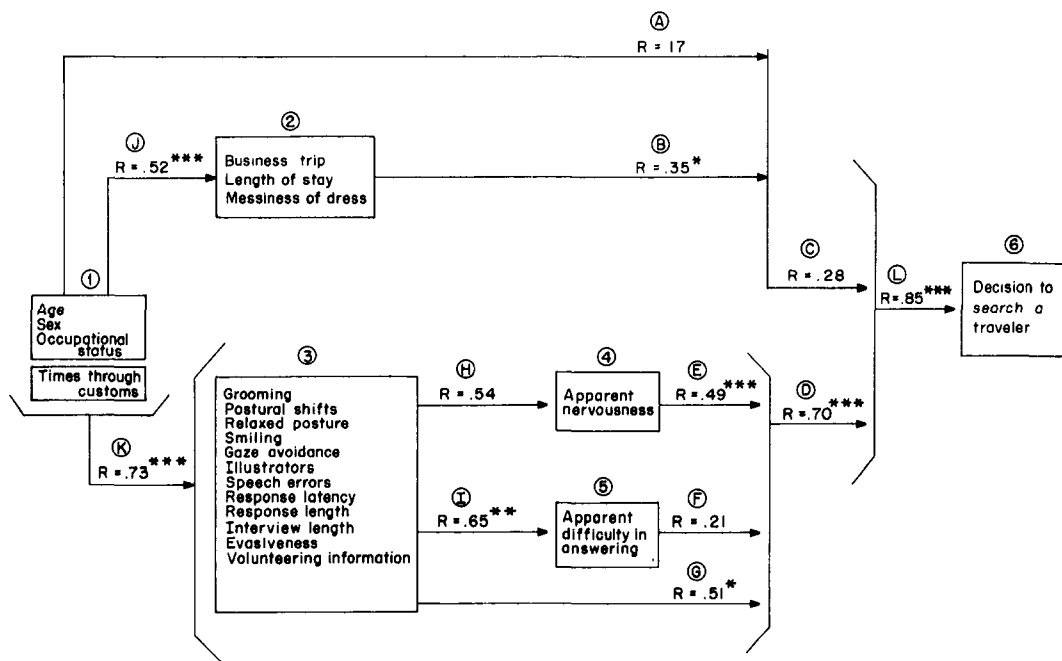

Figure 1. Multiple correlations between travelers' characteristics and judges' decisions to search them. (The regression equation for each of the lettered multiple correlations is listed below. The notation used for regression equations corresponds to standard notation for full and partial correlation analyses [cf. Cohen & Cohen, 1975], with the specific subscript numbers referring to the variables listed in the numbered boxes. Thus $R6(12)$ refers to the multiple correlation between the variable in box 6 and those in boxes 1 and 2; $R63 \cdot 145$ is the partial correlation between the variables in boxes 6 and 3, holding those in boxes 1, 4, and 5 constant; and so on. [A] $R61 \cdot (2345)$. [B] $R62 \cdot 1$. [C] $R6(12) \cdot (345)$. [D] $R6(345) \cdot 1$. [E] $R64 \cdot 1$. [F] $R65 \cdot 1$. [G] $R63 \cdot (145)$. [H] $R43 \cdot 1$. [I] $R53 \cdot 1$. [J] Canonical $R12$. [K] Canonical $R1(345)$. [L] $R6(12345)$.)

stereotype cues. In addition, judges can base their judgments on how travelers comport themselves in the customs interview by forming impressions of such factors as the travelers' nervousness and the difficulty they show in formulating answers. These intermediate impressions in turn are based on the specifics of the travelers' verbal and nonverbal behavior in the interviews. We call these comportment cues. Finally, how travelers comport themselves may in turn be at least partly influenced by their stable demographic characteristics (Efron, 1941) and closely related factors such as the number of times they have been through customs.

Figure 1 is our representation of the extent to which each type of deception cue influenced judges' decisions to search a traveler, under the assumptions defined in the preceding paragraph. The total effect of the background characteristics was large, accounting for 29% of the variance in judges' decisions to search travelers, $R6(12) = .54$; $F(7, 54) = 4.59$, $p < .001$ (see note to Figure 1 for an explanation of this notation). The zero-order correlations in Table 1 imply that both customs inspectors and laymen were more likely to search young people $(r = -.32)$ and lower-class people $(r = -.33)$. However, the impact of all the stereotyping cues that were not mediated by the travelers' comportment was small, accounting for less than 8% of the variance in search decisions, $R6(12) \cdot (345) = .28; F(7, 40) = 1.62$, $p < .10$. Thus, the decision to search young and lower-class travelers does not seem to have been based on the use of stereotypes but occurred because these travelers acted differently, giving off more nonverbal behaviors that led judges to search them.

In addition to those aspects of comportment that mediated the effects of a traveler's background, the direct influence on search decisions of the verbal and nonverbal behaviors and subsequent inferences was comparatively large. Even controlling for travelers' background characteristics, the travelers' comportment in the inspection accounted for 50% of the variance in judges' decisions to search them, $R6(345) \cdot 1 = .79; F(14, 43) = 5.94, p < .001$. The comportment cues that we measured had direct effects on the decision to search a traveler, $R63 \cdot 145 = .50$; $F(12, 43) = 2.74$, $p < .01$, and indirect effects mediated by how nervous the traveler appeared and how difficult a time it seemed he or she had answering questions.

A look at the zero-order correlations in Table 1 shows that travelers were more likely to be searched if they took a long time to answer a question, shifted their bodies more, gave short answers, and avoided eye contact with the inspector. Nervousness seemed to be an especially important cause of the decision to search travelers, even when background characteristics were controlled, $R64 \cdot 1 = .49$; $F(1, 56) = 18.26$, $p < .001$. In part this association of nervousness with search decisions reflects the indirect influence of the nonverbal behaviors we measured. However, these nonverbal behaviors are only moderately associated with perceived nervousness, $R43 \cdot 1 = .54; F(12, 45) = 1.64, p > .10$. The zero-order correlations show that travelers were perceived as slightly more nervous if they took a long time to answer $(r = .29, p < .05)$, tried to evade an answer $(r = .21, p < .10)$, or groomed themselves frequently $(r = .24, p < .06)$. Since the perception of nervousness was largely caused by factors we did not measure—perhaps voice pitch (Apple et al., 1979), word choice (Bolinger, 1973), or configural aspects of the answers—nervousness remains associated with decisions to search a traveler, even when the other comportment behaviors are controlled for, $R64 \cdot (13) = .28; F(1, 44) = 10.55, p < .002$.

To summarize this welter of numbers in less technical language, travelers' background characteristics, especially their age and social status, influenced custom inspectors' and laymen's decisions to search them by influencing the travelers' comportment in the interview, rather than by directly triggering the judges' stereotypes. Comportment cues had direct effects as well. Judges were likely to search travelers who appeared nervous in the interview. The appearance of nervousness itself was based on hesitating before answering questions, evading questions, grooming oneself, and other, as yet unidentified, behaviors. In addition to making people appear nervous, verbal and nonverbal behavior in the interview had a sizable, independent impact on judges' search decisions. Specifically, the multivariate analyses show that judges were more likely to search travelers who gave short

answers, shifted their bodies, avoided eye contact, volunteered extra information, and evaded direct questions, even when background characteristics and nervousness were held constant.

Two travelers illustrate our point that travelers' comportment rather than demographic stereotypes determined judges' decisions to search them. Both were men in highly prestigious professions (a lawyer and an investment wholesaler), were in their early fifties, were well-dressed, and were traveling on short business trips. The lawyer, whom 84% of the judges wished to search, constantly fumbled with a scarf and overcoat draped over one arm, avoided eye contact with the inspector, claimed not to remember any of the specific purchases he had made, and in general was perceived as very nervous. On the other hand, the investment wholesaler, whom only 26% wished to search, kept his hands steadily on the table, maintained eye contact, did not evade questions, and appeared calm.

Differences Among Judges

One of our major goals was to assess whether groups of people who should be differentially skillful at detecting deception have different decision rules, that is, use cues in different ways to make their judgments of deception. To compare two groups, for example, inspectors and laymen, we computed the difference between the inspectors' and laymen's mean judgments of each traveler and used this difference score as the dependent variable in a standard regression analysis in which the 21 background characteristics and comportment behaviors were independent variables. This analysis tested whether travelers' characteristics were associated with differences in two groups' decisions. If one thinks of the model presented in the previous section as the main effects of various cues, the present analysis is equivalent to an interaction testing the hypothesis that different groups used the cues differently.

The analysis just described shows that inspectors and laymen differed somewhat in their use of cues, $F(20, 41) = 2.20$, $p < .02$. However, in absolute terms the effect, although significant, was not large. Inspectors

were slightly less likely to search someone who made speech errors and smiled and slightly more likely to search someone who seemed to have difficulty producing answers, but these differences were not significant $(p < .15)$. Indeed, an examination of the zero-order correlations presented in Table 1 shows that inspectors and laymen did not differ significantly in their use of any single cue. (The mean $|z|$ for the difference between correlations was .77, $SD = .48$, with the highest being 1.48, $p = .14$.) The similarity in inspectors' and laymen's use of cues is reflected in the extent to which they decided to search the same travelers. The correlation between their mean search decisions was .61 $(p < .0001)$.

Among customs inspectors, the more successful ones—those who thought highly of their abilities and made more seizures—used cues similarly to the less successful inspectors, $F(20, 41) = 1.05$, $p > .40$. The correlation between their search decisions was high $(r = .78, p < .0001)$. Finally, high and low self-monitors also used cues similarly, both when inspectors and laymen were combined, $F(20, 41) = 1.16$, $p > .30$, and when each group was considered separately. The correlation between the search decisions of high and low self-monitors was again strong $(r = .75, p < .0001)$.

Discussion

The Role of Comportment

The results of our simulation strongly suggest that a person's performance in a social encounter—the verbal and nonverbal behaviors we have termed comportment—is the central causal factor that determines whether lay and professional judges think the person is lying. The central role that the comportment behaviors had on judgments of deception provides a testimonial for the use of a social psychophysical approach. Small and objectively described verbal and nonverbal behaviors had powerful and well specifiable influences on the perception of other people. Our attempt to model a complex social judgment differs from other attempts (e.g., Carroll & Payne, 1976; Finney, 1966; Meehl, 1965; Swenson & Pearson, 1964) in that it looks at the picking up of socially relevant information and focuses on

the preliminary stages in the social judgment process.

Travelers were more likely to be searched if they hesitated before answering, gave short answers, shifted their bodies, and avoided eye contact. However, of all the behaviors we have labeled comportment, perceived nervousness had the dominant impact on judgments of deception. We originally coded travelers along this dimension because we believed it would be highly correlated with a subset of more objectively definable nonverbal behaviors and would be an intermediate inference that would mediate those behaviors' effects on judgments of deception. This was not the case. Different observers did not agree very much on whether a traveler appeared nervous (the mean correlation for 7 coders was .29), and the more specifiable verbal and nonverbal behaviors did not predict their mean judgment well. (In Figure 1, $R43 \cdot 1 = .55$; $p > .20$). Even though many inspectors told us that on the job they used nervousness as a cue to decide whether someone was lying, perceived nervousness is not a compelling explanation for their decisions to search a traveler but may be a surrogate for the deception decision, and itself needs explanation. In any case, the model presented in Figure 1 still explains 49% of the variance in decisions to search a traveler, even if apparent nervousness is omitted.

The Role of Stereotypes

As we have stressed, travelers' comportment was the major determinant of judges' decisions about them, mediating the effects of demographic variables, as well as having independent effects. This is not to say that travelers' demographic characteristics were unrelated to judgments of deception; occupational status and age were among the best three predictors of search decisions, along with nervousness. Rather, it means that people differing in occupational status and age also differed in behavior, and that among travelers who were similar in their comportment, status and age no longer had an effect.

One could argue that the failure of stereotype cues to have independent effects may have been an artifact of our simulation. Since inspectors and lay judges knew that travelers were part of a simulation and that half of them

had been chosen as smugglers on a random basis, the judges may have ignored demographic information as predictors. But there is little a priori reason to suppose that when deciding who was suspicious in a simulation, judges would have ignored their intuitions about the demographic characteristics of smugglers but remained faithful to their intuitions about smugglers' behavioral characteristics.

Furthermore, in the present study the task for U.S. Customs inspectors was to pick travelers who would have made them most suspicious on the job, not to identify travelers to whom we gave contraband. To do this, the inspectors probably used the intuitions acquired through their years of job experience. Anecdotal evidence suggests that they did so. For example, many inspectors wanted to search one very calm and respectable-looking elderly woman because she was wearing an expensive fur coat, which might have been smuggled, even though they knew the coat was not part of the experimental manipulation. Another, younger woman was also heavily selected because she made several sassy remarks to the inspector doing the taped interrogation; many inspectors admitted wanting to search her for revenge. Finally, a number of inspectors selected travelers who reported trips to Lebanon, Syria, and Egypt because of the opportunities for drug smuggling from these countries. These instances show that inspectors, at least, did not jettison their normal responses to travelers because they knew the research was a simulation.

We believe that the relative weakness of stereotype cues in this study is a general phenomenon not limited to the peculiarities of a simulation. On the surface, the failure of stereotype cues to have direct effects on judgments of deception is similar to Tversky and Kahneman's (1974) and Nisbett and Borgida's (1975) conclusions that observers underuse base-rate information in making judgments about others, compared to optimal decisions made according to Bayes' theorem. The underuse of base-rate information is especially likely in a stimulus-rich experiment such as ours (at least compared to traditional person-perception or prediction studies), since as Manis, Dovalina, Avis, and Cardoze (1980) have suggested, base-rate information is used less in making a prediction about a target per-

son the more other information is available about the target. In person perception generally, behavior may swamp the field (Heider, 1958). Ultimately, however, we do not know if the present research is relevant to the issue of base rates, since we have no independent evidence that judges believed that different social groups have different base rates of smuggling and then failed to use these beliefs. Furthermore, the concept of a base rate is only a part of the concept of a stereotype, which also includes ego defensive and other personal motivations and emotionality in its definition.

Prior research has found that a target person's behavior often mediates what has been interpreted in the past as stereotype effects. For example, many of the class, race, age, and sex differences in arrests for both misdemeanors and felonies, which have often been attributed to police prejudice, seem instead to reflect behavioral differences among demographic groups. Demographic groups differ both in the number and severity of illegal behaviors, as measured by self-report questionnaires (e.g., Hindelang, 1971), and in their comportment when confronting policemen or other agents of social control. For example, failing to show a policeman what he considers to be appropriate respect, which blacks and teenagers do disproportionately, is a major factor evoking policemen's discretionary powers of arrest (cf. Piliavin & Briar, 1964; Werthman & Piliavin, 1967; Wilson, 1968). In a related vein, differences in grade school teachers' behavior towards boys and girls, often attributed to teachers' expectations, also seem instead to be caused by behavioral differences between the sexes (Brophy & Good, 1974).

Erickson (1979) provides a telling example for the point we are making. He notes that blacks often feel they are patronized in their conversations with whites. By carefully analyzing conversations between white guidance counselors and their students, Erickson discovered that the counselors overexplained points to black students because the black students had different verbal and nonverbal listener response styles. Whites misread the blacks' listener responses, assumed that the blacks were not paying attention or understanding when they did not show an appropriate head nod or "uh-huh" at the expected place, and continued to explain until they were convinced their listener understood.

By pointing to the role of behavior in person perception, we are not denying that people often do use stereotypes in making judgments about others (e.g., McCauley & Stitt, 1978). Indeed the U.S. Customs Service provides its inspectors with profiles based on travelers' social characteristics and their itinerary, as well as their behavior, as aids in identifying drug smugglers. Nor are we supporting the old notion that all stereotypes have a "grain of truth" (Zawadski, 1948). Perceivers may base their judgments of others on invalid cues, as judges in the present study used invalid comportment cues to deception. Perceivers may even use certain behaviors as a basis for judgment solely because they distinguish demographic groups; thus, in a very real sense, they make prejudiced judgments. Our point is rather that many judgments about people are based on their subtle behavior and that current social psychology is developing an incomplete and inaccurate model of person perception by emphasizing the perceivers' cognitive structures and ignoring characteristics of the perceived.

Generality of Cues

Although our conclusion that travelers' comportment was the primary factor that made judges suspicious may be quite general and at the root of many other complex social judgments, the issue of the generality of particular cues is complex. Across perceivers, the cues were very general and reflected the belief that many people had about the behaviors characterizing a liar. Large differences in training and job demands (inspectors vs. laymen), past success at detecting deception (successful vs. less successful inspectors), and personality (high vs. low self-monitors) made little difference in the way judges used cues to decide that someone was lying.

The failure of the self-monitoring scale to differentiate the bases for deception judgments, or for that matter to differentiate good from bad deceivers, is an especially interesting finding, because the scale's usefulness has already been reported in the secondary literature (Snyder, 1979). Both the present study and unpublished replications of Kraut (1978;

in Kraut, in press) and Krauss et al. (Note 2; in Krauss, Note 3) have failed to find that high self-monitors are better deceivers or judges of deception than low self-monitors.

The generality across settings of particular cues to the perception of deception is less clear. Since so few studies had adopted a social psychophysical approach to person perception generally or to the study of deception in particular, we do not know the generality of cues identified in this or other studies of deception. Some, like nervousness, may be very general. It was the strongest predictor in the present study, was a strong predictor for Krauss et al. (Note 2), and has been used by many cultures as part of a test for deception (Smith, 1967). Although plausibility (Kraut, 1978), internal consistency (Kraut, 1978), and evasiveness are also candidates for general cues to deception, researchers have predominantly ignored the verbal content of messages. Of nonverbal cues, response latency (Kraut, 1978; Kraut, in press; Krauss, et al., Note 2) and voice pitch (Apple et al., 1979; Streeter et al., 1977) have been consistently related to judgments of deception; both response latency (Baskett & Freedle, 1974; Kraut, 1978) and voice pitch (Apple et al., 1979), however, have effects that are dependent on verbal context. In these studies observers seem to be using nonverbal cues as indicators of arousal and then using the situational and verbal context to choose between alternative explanations for the arousal, with deception being one plausible explanation. This analysis suggests that one direction for future research on person perception and judgments of deception is to combine the social psychophysical approach we have been advocating with a more inferential model from attribution theory in order to see the way perceivers combine information to make judgments of others.

Conclusions

This research has shown the usefulness of an approach to person perception that emphasizes characteristics of the person being perceived. It can explain much of the variance in perceivers' judgments. Differences among groups of perceivers in their use of cues were trivial compared to the power of the cues themselves. We have shown this for the case of deception

and believe it to be much more general. Some characteristics of the perceived, such as physical beauty (Berscheid & Walster, 1974), talkativeness (Meltzer & Hayes, Note 4), or nervousness, may be powerful predictors of judgments across situations and judgment tasks. Other characteristics, like response latency, may predict only one judgment in a few situations. Even the judgment- and situation-specific cues, however, could have important practical significance if one wanted to know about or to change the ways customs inspectors, policemen, psychiatric intake workers, or prospective employers make decisions. We hope that our demonstration of the power of a social psychophysical approach to person perception will help provide a corrective to what we see as the overemphasis in social psychology on cognitive structures, which has turned social psychology away from the study of social phenomena.

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