Machiavellianism and Deception

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Subjects who held a Machiavellian view of life, as measured by Christie's Mach Scales, were more convincing liars than non-Machiavellians. Sixty-four college students (high and low Mach men and women) were videotaped denying knowledge of a theft. Half had just been directly implicated in the theft; the other half made the same denial truthfully. A different group of 64 high and low Mach men and women college students viewed the 1.25-minute videotape clips in random sequence and judged the denials for veracity. The judgments were analyzed in an eight-factor, equal-*n* analysis of variance. The judges discriminated truth from lies accurately overall. As predicted, lying high Machs were more believed than lying low Machs. Also as predicted, high Machs were harder to judge. Lying high Machs were believed as much as truthful high Machs, but lying low Machs were less believed than truthful lows.

People who hold a Machiavellian view of life are expected to be smooth liars. In ordinary parlance Machiavellianism is synonymous with the use of guile and deceit. Although Machiavelli did not advocate lying as a preferred policy, he assumed its necessity in an imperfect world. In fact he emphasized maintaining a public appearance of virtue while practicing whatever means were required to achieve one's ends. When the truth is unlikely to serve one's purpose, a lie is presented instead. Since Christie's (1970) development of the Mach Scale, a face-valid measure of agreement with Machiavelli, a number of studies have demonstrated that high scorers were more willing and able con artists than low scorers (Christie & Geis, 1970). But in contrast with the positive results for general manipulative skills, empirical demonstration of high Machs' hypothesized lying ability has been lacking.

The first study using the Mach Scales in which objectively identifiable lying (by subjects) was observed was that of Exline, Thibaut, Hickey, and Gumpert (1970). After cheating with a partner when the experimenter was called out of the room, subjects were interrogated by the experimenter. Listening to audio tapes judges rated high Machs' responses as deviating further from the truth and sounding less anxious than lows'. Since Exline et al.'s judges knew subjects were lying and had only audio not visual cues, a more direct test of lying ability seemed warranted.

Oksenberg (1970) challenged subjects to deceive a galvanic skin response recorder but found high Machs' deflections as large as lows'. But even if high Machs could not beat the lie detector, it was still possible that they could deceive other persons. Nachamie (1970) found high Mach children's bluffs in a game challenged less often than lows', but since Nachamie used only opposite-Mach pairs, it was impossible to tell whether high Machs were more convincing bluffers or lows more reluctant challengers. Braginsky (1970) asked high- and low-Mach children to persuade a middle-Mach target child to eat bitter crackers. The high-Mach children lied more, and their target children ate more crackers. The successful persuasions might have been due to greater credibility while lying, but they also might have been due to other aspects of the interaction.

High Machs' hypothesized advantage in deception may depend on their ability to control the outward appearance of anxiety. In initial role-playing studies (Geis & Leventhal, 1970), high Machs' lies were not more believed than lows' (a result confirmed by Krauss, Geller, & Olson, Note 1). High

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Machs were significantly more believed than lows, however, when both were telling the truth (a result replicated by Novielli, 1970). This is a familiar pattern in Mach research: High Machs are more successful when irrelevant affect distracts low Machs, but not when such distractions are absent (Geis, Weinheimer, & Berger, 1970; Geis & Christie, 1970). The irrelevant affect that presumably accompanies lying outside of the laboratory, but was absent in the role-plaving studies, was anxiety. Consistent with this interpretation Mehrabian (1971) found that role playing and real lying differed in rapidity of speech, length of utterances, and nonfluencies (but he did not use Mach as a variable). This suggested that detecting Mach differences in lying ability might require a realistic-appearing situation in which lying would presumably provoke anxiety. If high Machs can control the appearance of anxiety better than lows can, they should be more convincing liars.

In the present study high and low Machs were induced to lie without knowing that it was part of the experimental set-up. A truth condition was also run to provide comparison data and to disentangle specific lying ability from general persuasiveness. The hypothesis that high Machs would be more convincing liars than lows was tested by having subjects judge the credibility of high and low Machs denying a theft after their team stole or did not steal money from an opposing team.

The major prediction was that high Machs would be believed more than lows when both were lying. Two additional predictions were also tested: (a) that high Machs would be more persuasive than lows, over truth and lie conditions combined; (b) that high Machs would be harder to judge than lows (their credibility would differ less between truth and lie conditions than lows' credibility in the two conditions). This last prediction was based on a person-perception study (Geis & Levy, 1970) in which subjects tried to guess each other's answers to the Mach Scale, and high Machs' answers were guessed less accurately than lows'.

Method

The study was designed to investigate social lying, that is, intentional deception of one person by another.

The success of such lies must be measured by the extent to which they are believed. In this article the persons doing the believing or disbelieving will be called *judges*; the liars and truthtellers will be called *target persons*. The nature of the two-person interaction required a representative, or stimulus-sampling, design (Brunswick, 1955; Petrinovich, 1979). In addition to the usual sampling of judge subjects, the stimuli (target persons) were also sampled from the subject population.

The double sampling design resulted in a two-part methodology, as shown in Table 1. First (Part 1), 64 target-person subjects were videotaped lying or telling the truth. High- and low-Mach men and women were videotapes in each of the Mach \times Sex \times Truth/Lie cells were collected. The eight tape clips in each cell were then equally divided for re-recording on Stimulus Tape 1 or 2. The subdivision was simply so that later judge subjects could be run in 1-hour sessions. Then (Part 2) the videotaped denials were judged for credibility. Sixtyfour additional subjects viewed one or the other stimulus tape (32 target persons) and tried to guess whether each denial was the truth or a lie.

Subjects

One hundred twenty-eight university students from introductory psychology courses participated as subjects.

Mach Pretest

Mach IV and V Scales (Christie, 1970) were administered in subjects' classrooms during the first 2 weeks of the semester. Scale statistics are given in Table 2. Medians over the two semesters of running target subjects averaged 96.40. (The theoretical neutral point, neither agreeing nor disagreeing with Machiavelli, is represented by a score of 100.) A median split of the target-subject population was approximated by classifying subjects who scored 97 and above as high Machs and those scoring 96 or below as lows. For judge subjects (a semester later) the split was between scores of 98 and 99.

Part 1: Target Subjects' Denials of Theft

The procedures in this part of the study were designed to create a credible situation in which some subjects had to decide to lie or not to lie. This dilemma was created with a Prisoner's Dilemma game in which real money was used, ending in a sequence of collusion, betrayal, retaliation (theft or no theft), and accusation. When the subject arrived at the laboratory, she or he found that she or he was one of a four-person group. The other three subjects were actually prerehearsed confederates of the authors. Experimenter and confederates were always the same sex as the subject. The session began with an explanation of cooperation, competition, and the Prisoners' Dilemma game to be played by two opposing teams, the subject and one confederate against the other two confederates. Copies of the payoff matrix (Figure 1) were visible to both teams throughout the session.

After the introductory explanation, the experimenter

	Stimulus Tape 1				Stimulus Tape 2			
	High Mach <i>n</i>		Low Mach n		High Mach <i>n</i>		Low Mach n	
	M	F	M	F	М	F	М	F
			Part 1: Tar	get subjects				
Condition								
Truth	4	4	4	4	4	4	4	4
Lie	4	4	4	4	4	4	4	4
			Part 2: Jud	lge subjects				
Experimenter								
Male	4	4	4	4	4	4	4	4
Female	4	4	4	4	4	4	4	4

Table 1 Experimental Design

Note. M = male target or judge; F = female target or judge. Each judge subject in Part 2 judged all 32 of the Part 1 target subjects on the assigned stimulus tape.

asked each player to "tell something about yourself." This got subjects involved and comfortable with the confederates, in preparation for later events, and also established the confederates' characters. The subject's partner was a junior honors pre-med major who was friendly, dynamic, and sincere, a manipulation devised by Bogart, Geis, Levy, and Zimbardo (1970) to enhance a partner's credibility. One opposing team confederate was mercenary (motivation for the later collusion, betrayal, and accusation) and cold (to make denying the accusation easier).

After practice trials to teach subjects the game, the experimenter read aloud the psychology department policy statement assuring subjects of the anonymity of their data and reminding them that they could leave the experiment without penalty at any time. The experimenter then gave the rules that promised unlimited privacy and forbade collusion.

Okay, here's the procedure. Before each trial the two partners will plan together which row or column they will play for that trial. Each team will confer privately, one in here, the other out in the anteroom.

Table 2Mach Scale Sample Statistics

		Split-half reliability					
Sample n		Mach IV	Mach V	Totalª	Mdn score		
1 (targets)	95	.54	.33	.69	97.00		
2 (targets)	146	.66	.35	.59	95.80		
3 (judges)	126	.44	.06	.52	99.04		

^a Mach IV-Mach V correlation.

You will have as much time as you need to arrive at your decisions.

I will not be present during these planning periods. It is important that each team come to your own private decision without any influence from any extraneous source. Whichever team finishes first will knock on their side of the anteroom door. When the other team is finished they will knock on their side. When both teams have signaled, the team in the anteroom will return to this room. One of you, then, must signal me by knocking on my door.

When I return, each team will write their decision choice, and fill out a "Major Motives Checklist" telling why they chose as they did for that trial.



Figure 1. Prisoners' Dilemma Game.

If any of you have any questions, please ask them now, because once the experiment begins there can be no talking at all except between the two partners during the planning periods.

The confederate team was sent to an adjoining anteroom; the experimenter exited by another door to a different adjoining room. Here and throughout the private planning sessions, the subject's partner entered into, or initiated if necessary, discussions of game strategy (urging the preplanned choice for that trial) and small talk to build rapport.

At the teams' signal knocks, the experimenter reentered, asked both teams to write their decisions on a piece of scratch paper, collected them, and asked each team to complete a mimeographed Major Motives Checklist, a decoy to support the cover story. The experimenter then announced the decisions, "The column players chose A and the row players chose C." (Confederates' decisions for all trials were memorized in advance.) In full view of the subjects, the experimenter then casually tore the two team decision scratch papers in half and dropped them in a wastebasket already half full of such scraps. Thus subjects could assume later that a theft could not be objectively proved or disproved. Then, taking 10 one-dollar bills from a box on a nearby table, the experimenter continued, "That means that the column players win \$5 . . ." (the experimenter counted out 5 bills into a pile in front of the subject-team), ". . . and row players win \$5" (counting out the remaining 5 to the confederate team). This was the subject's first indication that the dollar signs in the payoff matrix might have more than symbolic significance. Then in the private planning session for trial two, the subject's partner commented that she or he had heard there was some experiment in which subjects got to keep money and wondered if this were the one. (At no time did the experimenter mention keeping the money-or not keeping it.) The use of real money to enhance game importance came from Christie, Gergen, and Marlowe (1970). The amounts involved in the present study, and particularly the \$4 theft, were designed to be large enough to make the succeeding events seem consequential as they occurred, but small enough to be credible, and also small enough to avoid making the experimental episode appear genuinely serious, as it might later be recalled in greater perspective.

Trials two and three followed in the same pattern of mutual cooperation. For trial four the subject's partner suggested defection. The confederates again played cooperatively, so the subject team won \$7 and the confederate team lost \$4. The experimenter did not remove money (to be sure that both piles would be large enough to disguise the possibly upcoming theft), but instead counted out to the losing team the required number of preprinted IOUs, ostensibly to be subtracted later. For trial five the subject's partner again urged defection, since the other team would certainly retaliate, and both teams received IOUs.

Collusion and betrayal. By the planning period for trial six, it was clear that mutual cooperation was more lucrative than defection. Many subjects mentioned this spontaneously; otherwise their partner did. When the subject team returned, the mercenary confederate on the opposing team proposed collusion. This conversation directly violated the stated rules of the experiment.

Confederate: "Wait a minute. Sit down. Listen, we've got to make an agreement. For the rest of the experiment, you two always choose A and we'll always choose C." When the agreement was established, the experimenter was summoned as usual. The experimenter proceeded as usual, acting unaware of the collusion and thus allowing subjects to discount any lingering suspicions about being monitored. The subject team cooperated as agreed, but the confederate team defected, resulting in the confederate team winning \$7 dollars and the subject team losing \$4. (This collusion and betrayal instigation was adapted from Crowne & Marlowe, 1964.)

When the experimenter and confederate team left for the next planning session, the subject's partner acted indignant. "Can you believe what they did! They tricked us. They betrayed us. They broke the rules. They took us for a couple of suckers. I can't believe it." Then, speaking slowly as if forming an idea, "But maybe we can beat them at their own game." With increasing confidence and vehemence, "They cheated us out of \$4; they owe us four \$4."

Theft (lie) condition. The subject's partner reached over the divider board, took \$4 from the confederate team's pile of money, and placed it on their own pile, continuing the speech above, "Keep mum. I don't think they'll even notice, but if they do, we don't know anything. It'll serve them right." The speeches above varied slightly from session to session to accommodate subjects' responses.

No-theft (truth) condition. The subject's partner omitted the theft and simply followed "They owe us \$4" with a vehement, "Let's play B this time. It'll serve them right."

Accusation and denial. The mercenary confederate on the opposing team took the role of accuser. This was pure acting. Neither opposing-team confederate knew whether a theft or no-theft condition had been run; thus the accuser's knowledge and instructions were identical for all subjects.

As the confederate team returned, the accuser sat down smiling, glanced at the team's money pile, stopped smiling, and called out to his or her partner (who was heading toward the experimenter's door to give the signal knock), "Hey, wait a minute. Look at our money."

The accuser's partner returned to his or her seat, looked at the money, and looked at the accuser, puzzled. "What about it?"

Accuser: "Some of our money's missing." The accuser's partner frowned incredulously at the accuser.

The accuser then stared angrily at the subject's partner, who blandly returned the stare. This bit of acting between the two confederates initiated a group norm of noncapitulation for the subject team. The accuser then switched his or her stare to the subject, holding as long as the subject showed no sign of weakening, and switching away before the subject did. This was to bolster subjects' courage, making them feel the accuser would give in if they held out. A second purpose was to make the accuser appear to be trying to figure out what to do or say next.

The accuser decided to confront the subject team directly. Looking mostly at the subject's partner, but with glances at the subject, she or he demanded, "Did you two take any of our money while we were out there?"

The subject's partner, returning the stare, answered firmly, "I didn't take any of your money" (an outright lie in the theft conditions). Continuing, the subject's partner turned to the subject, asking evenly, "Did you take any of their money?" All subjects in both conditions could truthfully say "no," but in theft conditions it also maneuvered the subject toward a team denial of theft.

The accuser, glancing back and forth at the subject and the subject's partner, said, patently cajoling, "Look, we're sorry we tricked you," returning to the serious, angry tone, "now admit you took the money and give it back."

The subject's partner dropped his or her glance from the accuser and looked to the subject for response.

From this point on the accuser addressed the subject, staring angrily. If the subject remained silent after any confederate spoke, a 6-sec pause ensued before the next confederate statement, putting pressure on the subject to respond.

- Accuser's partner: "They didn't take any money; let's go on with the game."
- Accuser to subject, ignoring his or her own partner: "Well?"
- Accuser: "What's your answer" (a demand, not a question).
- Accuser: "Look, it's obvious that some of our money's gone. It didn't walk away. Now just exactly what happened in here while we were out?"
- Subject's partner: "We planned our decision for this trial—if we ever get to play it."
- Accuser: "And what do you say happened in here while we were out."

The interrogation sequence was adapted from Exline et al. (1970). Its purpose was to get subjects to deny occurrence of a theft, either by verbal protestations or by passive silence. Again specific wording and order of statements varied from session to session to accommodate subjects' responses. No subject remained silent; most denied the theft.

The experimenter monitored the accusation via the laboratory video system with hidden camera focused on the subject's face. If the subject resisted confession, the sequence was allowed to continue for 2.5 minutes, after which the experimenter returned, gave the subject a full explanation of the true purpose of the session, and asked for his or her written permission to use the tape in Part 2 of the study. The experimental session took about 40 minutes, the debriefing as long as necessary.¹

Experimental controls. (a) None of the subjects, experimenters, or confederates knew any subject's Mach classification during the session. (b) The truth/lie (no theft/theft) condition was run blind. Before the theft did or did not occur, no one in the session knew which condition was being run. After the theft did or did not occur, only the subject and his or her partner knew. The

partner-confederate who carried out the manipulation was allowed to view a coded instruction, an odd versus even digit in a subject code number on the experimenter's clipboard, approximately 40 sec in advance, at the end of the preceding game trial. The experimenter had been carrying the code numbers and knew that they contained the instruction but did not know the code. (c) The initial instructions to subjects were read aloud, verbatim, by the experimenter for each session. (d) A verbatim script for the remainder of the session (with contingency subroutines to accommodate subjects' responses) was memorized by experimenters and confederates. Male and female experimenters and confederates and confederates practiced together before running and observed each other periodically during running to maintain unifor-

¹ Additional information about both experimental and debriefing procedures is available from F. L. Geis on request. The debriefing began with the experimenter carefully telling the subject that everything that had happened had been set up and planned in advance and carefully explaining the true purpose of the deceptions. The experimenter then reviewed the contrived dilemmas (collusion, betrayal, theft, and accusation) emphasizing: (a) The situation at each point was in fact far more ambiguous in terms of the moral choices available than hindsight made it appear; (b) the subject's responses were fully understandable, given the situation at the time. The experimenter pointed out that the subject had been put in a series of impossible situations in which there were no clear correct answers; they were all choices between two evils. (E.g., the collusion did break the rules, but it seemed relatively innocuous. The experimenter appeared interested only in the "Major Motives Checklist" and completely unconcerned about who won how much, and gratuitous tattling on fellow students was clearly despicable by student norms.) Throughout the discussion the experimenter carefully avoided either condoning or condemning any subject behavior or explanation but rather spoke from an attitude of understanding human frailty and respect for human ingenuity under adversity. It was never suggested that these acts would not be condemned and punishable outside of the laboratory, but it was emphasized that the psychological approach of understanding and learning, not judgment, was the applicable one in this particular situation.

Experimenters were pretrained to watch for signs of anxiety or anger persisting after the explanations, whether verbalized or not, and to escort the subject directly to the faculty supervisor if any were detected. This contingency procedure was not required. Subjects' most common reaction was characterizing the session as "a learning experience." All were given the name and phone number of the faculty supervisor and urged to ask questions if any should occur later. Six subjects accepted the invitation, all showing interest, curiosity, and asking to serve as a laboratory assistant the following semester. In addition, the faculty supervisor intercepted a number of subjects leaving the laboratory and asked informally what had happened in their session; all gave an accurate account of the procedure and true purpose. mity. The practice was extensive, detailed, and carefully supervised, with attention both to verbal script and nonverbal eye and facial signals, and supervision continued throughout data collection. Minor deviations in wording and phrase sequencing within the major interaction segments occurred, as anticipated. Major deviations caused subject attrition.

Subject attrition. Seventeen subjects were lost from theft conditions by their own initiatives, as shown in Table 3. All were replaced from the same subject pool until all experimental cells were filled. There was no Mach difference or sex difference in overall attrition (11 high Machs were lost out of 27 run, 6 of 22 lows; 8 of 24 men, 9 of 25 women). No subjects were lost from no-theft conditions.

Editing of denial segments. The 2.5-minute videotape denial segments were edited to 1.25 minutes each and were re-recorded on two stimulus tapes, 32 target subjects per tape as shown in Table 1. The major editing criterion was that the final version be representative of the entire recorded segment. For example, if a subject were characterized by long silences and verbal nonfluencies, shots of each were included proportionately. Additional criteria were that the target's voice be audible, his or her full face visible, and cuts that might garble the meaning avoided. The tape editor did not know target person's Mach classification or truth/lie condition during editing. The sequence of target subjects on each stimulus tape was random within the overall equal division by Mach, sex, and truth/lie requirement shown in Figure 1.

Part 2: Credibility of Targets' Denials

The credibility of a target subject's denial of theft was measured by the extent to which it was believed or disbelieved by 32 judge subjects. Sixty-four new subjects, in mixed (Mach and sex) groups of 2-16, watched a videotape of 32 target subjects and judged the credibility of each target's denial. High- and low-Mach men and women were randomly assigned to view one or the other stimulus tape in 1-hour sessions conducted by a male or female experimenter. Experimenters were blind to target subjects' Mach and truth/lie conditions, and also to judge subjects' Mach classifications. The subjects were given a mimeographed page of explanation:

The purpose of this study is to find out if people can tell whether someone is lying or telling the truth. Most previous research on lying has used machines; GSR recorders, or lie-detectors. But some research is now beginning to suggest that some people can detect lying without a machine. This ability is obviously important. In most of the situations when we wonder about another's truthfulness, we can't use a machine—in diplomatic negotiations, between friends, lovers, or employees and bosses, as jurors listening to a witness in court. This study will test your ability as a judge of human nature.

The instructions continued, telling subjects that they were going to see a videotape of college students denying a theft, some truthfully, some falsely, and the situation

Table 3

Subjects Lost From Theft Conditions by Their own Initiative

	Hig su	h Mach bjects	Low Mach subjects		
Reason for attrition	Men	Women	Men	Women	
Refused to permit theft/physically returned money	3	6	1	0	
Confessed to accuser before 2.5 minutes of	-	·	-		
accusation	1	1	3	1	
Refused permission					
to use videotape	0	0	0	1	

used in Part 1 was described briefly. The page of instruction and explanation was also read aloud to the group by the experimenter before turning on the videotape. On the tape the target subjects were numbered in order, with 4 sec between targets for judges to mark their veracity bets.

The judges marked their belief of each target on a 6-point Likert scale. Points 1, 2, and 3 were labled lying, with sublabels *definitely*, probably, and just guessing. Points 4, 5, and 6 were labeled *telling the truth*, with sublabels just guessing, probably, and definitely.

Results

The judges' guesses of the targets' truthfulness provided the data. The data were analyzed by equal-n factorial analyses of variance. The variables of major interest were (a) Mach (high vs. low) of target subjects, and (b) truth vs. lie condition of target subjects' denials. Both were within-judge variables. Other variables included for control and comparison were (c) sex of target subjects; (d) Machiavellianism of judge subjects (e) sex of judge subjects; (f) sex of experimenter conducting the judging sessions; (g) stimulus tape 1 or 2 (a between-judge variable required only by the time constraint on judging sessions); (h) replications (person of target subject)-There were four target persons in each Mach \times Sex \times Truth/Lie cell on each tape. This within-judge control variable simply reflected and incorporated the stimulus sampling design. Significant effects reflected individual differences among target persons.

Since judges' responses were obtained on a 6-point scale (1 = definitely lying to 6 = definitely telling the truth), the midpoint of the scale was 3.50. The empirical mean of all judges' responses for all target persons was 3.51. The judges were able to discriminate truth from lies with greater than chance accuracy overall. Judges' mean rating of truthful denials was 3.78, of deceitful ones, 3.24; F(1, 48) = 55.50, p < .01.

Credibility in Lying

The major prediction was that high Machs would be able to lie more believably than low Machs. This prediction was confirmed. As shown in Figure 2, the judges believed lying high Machs more than they believed lying lows. High Machs' lies averaged 3.55 on the credibility scale, approximating the judges' point of complete uncertainty. Low Machs' lies averaged 2.94, significantly unbelievable. The Mach difference in the lie condition was significant by contrast test, F(1, 48) = 7.19, p < .01. The major hypothesis was clearly supported.

General Persuasiveness

The expected advantage of high Machs in general persuasiveness can also be seen in Figure 2. High Machs' mean credibility, over truth and lie conditions combined, was 3.69; lows' averaged 3.34. This target Mach



TARGET SUBJECT'S DENIAL CONDITION

Figure 2. Credibility of high and low Mach target subjects lying and telling the truth.

main effect was significant, F(1, 48) = 32.77, p < .001. However, it was due primarily to the Mach difference in the lie condition; high Machs were not believed significantly more than lows in the truth condition considered alone; contrast F(1, 48) = .15, ns).

Inscrutability

The expectation that high Machs would be harder to judge than lows was also confirmed, as evident in Figure 2. The judges discriminated truthful from lying high Machs significantly less accurately than they discriminated truthful from lying lows, interaction F(1, 48) = 19.89, p < .001. In fact there was no significant credibility difference between lying and truthful high Machs, contrast F(1, 48) = 1.46, ns, but lying low Machs were significantly disbelieved compared to truthful lows, contrast F(1, 48) =11.97, p < .01.

Additional Data

There were no significant effects of judges' Machiavellianism. High- and low-Mach judges did not differ in accuracy, discriminating truth from lies for all target persons, overall, F(1, 48) = .24, ns. All judges were more accurate for low-Mach targets, as noted above.

The individual target persons, considered as test items, showed significant reliability. Each target person was judged for credibility by 32 judges. The mean credibility of individual truth tellers ranged from 5.44 (a high-Mach woman) to 2.31 (a low-Mach man). The most credible liar (a high-Mach man) averaged 4.66 across judges; the least credible (a low-Mach woman), 1.81. The significant reliability of the target test items was indicated by the significant individual differences interaction; Stimulus Tape \times Target Sex \times Target Mach \times Target Denial Condition \times Target Replication, F(3,144) = 11.68, p < .001.

Accuracy scores of individual judges (mean credibility attributed to truthful denials minus mean credibility attributed to false ones) were not calculated. The judges as a group were significantly accurate for low-Mach target subjects but not highs, as reported above. There was no difference in accuracy due to Mach or sex of judges, sex of experimenter, or stimulus tape. The interaction between truth/lie and each of these variables was insignificant. There were also no significant main effects (mean credibility attribution over truth tellers and liars combined) for sex of judge, Mach of judge, tape set, or sex of target.

Two sex differences were significant. Women target subjects were judged more accurately than men, interaction F(1,48) = 7.33, p < .01. A finding common in person-perception studies, this was not unexpected. The Mach results above held for both men and women targets separately as well as combined. There was also a sex of experimenter main effect. Judges found targets more believable overall when their testing session was run by a male experimenter rather than a female, F(1, 48) = 8.28, p < .01.

Discussion

Lying high Machs were more believed than lying low Machs. When subjects were implicated in a theft and then accused by the victim, high Machs' false denials were less often tagged as lies than low Machs' denials. The judges, watching them on videotape, knew some subjects were lying, but not how many or which ones. This result held for men and women alike. High Machs, who agree with Machiavelli that the appearance of honesty is foremost, were seen as more honest than low Machs, who believe that honesty itself is most important. Given interrogation on an action one wishes to conceal, lying becomes a means to an end. Lying more credibly is more likely to achieve the goal (such as avoiding self-incrimination) than lying transparently.

The findings clearly supported the most comparable earlier work, that of Exline et al. (1970) cited in the introduction. High Machs' lying ability is also consistent with related research. Geis (1970) found that high Machs increased their negotiating advantage when others could not check the veracity of their assertions. Epstein (1969) found that high Machs could advocate a policy they disapproved without then coming to approve it. Low Machs changed their opinions, in effect converting their deceitful advocacy into an honest one.

High Machs' more successful lying in the present study was directly contrary to the lack of Mach credibility differences when lying in the earlier role-playing studies (Geis & Leventhal, 1970). The obvious difference between the two test situations was that this one appeared real to the subjects, the other, an experimental exercise. At stake in the present lie condition was getting caught in a theft. Subjects lied on their own responsibility, presumably under pressure of anxiety. In the role-playing studies lying was legitimate, the experimenter's explicit instruction. Lying under pressure low Machs were less believed than highs; without pressure they had been just as convincing. This interpretation was derived from the hypothesis that irrelevant affect distracts low Machs more than highs. Although anxiety might not be considered irrelevant when lying, it is irrelevant to the specific goal of appearing believable, and failure to control the appearance of anxiety may serve as a major cue to being seen as insincere.

The same hypothesis also handles the two truth condition results. In role playing truthful high Machs were more believed than truthful lows, but in the present study there was no Mach difference in the truth condition. Although being falsely accused of theft might seem more serious than defending one's beliefs, in fact the opposite might have been the case, at least from the low-Mach point of view. In the role-playing studies controversial opinion issues had been used to equalize the face validity of both pro and con positions; there were no factually definable right answers. Defending a true belief under peer interrogation might have made low Machs doubt the validity of the belief or their ability to explain and defend themselves (compared to high Machs who are more detached from their beliefs; see Geis & Christie, 1970). In contrast, under false accusation the low Machs were surprised, but not anxious. They knew no theft had

occurred; they knew they were right and said so as effectively as high Machs.

This interpretation suggests that high Machs are not simply more persuasive generally than lows, but only when high stakes create ego-involvement, anxiety, or defensiveness, which debilitate the lows. Life outside of the laboratory might or might not be sufficiently challenging to give high Machs the advantage most of the time, but they may well have the edge at important times when the stakes are high.

As predicted, high Machs were harder to judge than lows. This was not simply a consequence of the highs' more credible lying. Lying high Machs could have been more believed than lying lows, but less believed than truthful highs. In fact the judges could make no significant discrimination between truthful and lying high Machs. In contrast, these same judges did discriminate accurately and significantly between truthful and lying low Machs. This finding had been predicted from a person-perception study (Geis & Levy, 1970) in which subjects tried to guess another's Mach Scale responses after interacting in a group for an hour.

The same pattern of results in two different situations, 12 years apart, suggests that it might be robust. In the present study the judges were guessing guilt or innocence, in effect the affective state of the target person at the moment; in the Geis and Levy study they were guessing targets' cognitions, stable views of the human condition. The earlier study used only male subjects; the present one used both sexes. Geis and Levy's judges had an hour of live involving interaction with their targets on which to base their guesses; the present judges had 1.25 minutes of videotape. Finally, in the earlier study each judge made guesses for only one target person, selected by himself from a mixed-Mach group of six, so it was impossible to tell whether high-Mach targets were harder to judge or peculiarly chosen by inept judges. In the present study each judge made a guess for 16 high Machs and 16 lows, with no choice among targets. It would appear that high Machs are indeed deceptively inscrutable.

The target subject attrition figures in Ta-

ble 3 show two interesting patterns. It might have been assumed that low Machs, who claim belief in honesty, would have refused to go along with the theft more than highs. In fact 27 high Machs had to be run in the theft condition to fill the design requirement of 16. Nine of those lost refused to permit the theft, compared to only 1 of the 22 low Machs, $\chi^2(1) = 6.21$, p < .01. Although the high Machs' refusals might have been due to moral scruples, it is at least equally likely that they simply reflected skill at avoiding entrapment for small stakes. In support of the second interpretation, high Machs were also more skillful at avoiding entrapment under interrogation. They were less likely to confess the theft after permitting it than to refuse it in the first place (2 to 9), compared to lows' confessing more than refusing (4 to 1), $\chi^2(1) = 5.60$, p < .05. Similar findings were reported by Exline et al. (1970) and by Bogart et al. (1970).

Most important from the validity point of view, sample attrition was not greater for high Machs than lows (11 of 27 to 6 of 22, ns). Although the sample of liars cannot be claimed fully representative of the student population because of the attrition, it might for the same reason be more representative of the natural population of liars, since refusals to participate in shady ventures and confessions after wrongdoing can also occur outside of the laboratory.

Reference Note

1. Krauss, R. M., Geller, V., & Olson, C. T. Modalities and cues in the detection of deception. Paper presented at the annual meeting of the American Psychological Association, Washington, D.C., September 1976.

References

- Bogart, K., Geis, F. L., Levy, M., & Zimbardo, P. No dissonance for Machiavellians. In R. Christie & F. L. Geis (Eds.), *Studies in Machiavellianism*. New York: Academic Press, 1970.
- Braginsky, D. D. Machiavellianism and manipulative interpersonal behavior in children. Journal of Experimental Social Psychology, 1970, 6, 77-99.
- Brunswick, E. Representative design and probabilistic theory in a functional psychology. *Psychological Re*view, 1955, 62, 193-217.
- Christie, R. Scale construction. In R. Christie & F. L.

Geis (Eds.), Studies in Machiavellianism. New York: Academic Press, 1970.

- Christie, R., & Geis, F. L. (Eds.). Studies in Machiavellianism. New York: Academic Press, 1970.
- Christie, R., Gergen, K. J., & Marlowe, D. The pennydollar caper. In R. Christie and F. L. Geis (Eds.), *Studies in Machiavellianism*. New York: Academic Press, 1970.
- Crowne, D. P., & Marlowe, D. The approval motive: Studies in evaluative dependence. New York: Wiley, 1964.
- Epstein, G. Machiavelli and the devil's advocate. Journal of Personality and Social Psychology, 1969, 11, 38-41.
- Exline, R. V., Thibaut, J., Hickey, C. B., & Gumpert, P. Visual interaction in relation to Machiavellianism and an unethical act. In R. Christie & F. L. Geis (Eds.), *Studies in Machiavellianism*. New York: Academic Press, 1970.
- Geis, F. L. The con game. In R. Christie & F. L. Geis (Eds.), *Studies in Machiavellianism*. New York: Academic Press, 1970.
- Geis, F. L., & Christie, R. Overview of experimental research. In R. Christie & F. L. Geis (Eds.), Studies in Machiavellianism. New York: Academic Press, 1970.
- Geis, F. L., & Leventhal, E. Attempting to deceive and detecting deception. In R. Christie & F. L. Geis

(Eds.), Studies in Machiavellianism. New York: Academic Press, 1970. (Abstract)

- Geis, F. L., & Levy, M. The eye of the beholder. In R. Christie & F. L. Geis (Eds.), Studies in Machiavellianism. New York: Academic Press, 1970.
- Geis, F. L., Weinheimer, S., & Berger, D. Playing legislature: Cool heads and hot issues. In R. Christie & F. L. Geis (Eds.), *Studies in Machiavellianism.* New York: Academic Press, 1970.
- Mehrabian, A. Nonverbal betrayal of feeling. Journal of Experimental Research in Personality, 1971, 5, 64-73.
- Nachamie, S. Machiavellianism in children: The children's Mach scale and the bluffing game. (Doctoral dissertation, Columbia University, 1969). Dissertation Abstracts International, 1970A, 30, 4550A-4551A. (Order No. 70-7035)
- Novielli, J. Who persuades whom? In R. Christie & F. L. Geis (Eds.), *Studies in Machiavellianism*. New York: Academic Press, 1970. (Abstract)
- Oksenberg, L. Machiavellianism and emotionality. In R. Christie & F. L. Geis (Eds.), *Studies in Machiavellianism*. New York: Academic Press, 1970. (Abstract)
- Petrinovich, L. Probabilistic functionalism, a conception of research method. *American Psychologist*, 1979, 34, 373-390.

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