HUMAN
COMMUNICATION RESEARCH

Human Communication Research ISSN 0360-3989

ORIGINAL ARTICLE

(In)accuracy at Detecting True and False Confessions and Denials: An Initial Test of a Projected Motive Model of Veracity Judgments

Timothy R. Levine[1], Rachel K. Kim[1], & J. Pete Blair[2]

1 Department of Communication, Michigan State University, East Lansing, MI 48824, USA
2 Department of Criminal Justice, Texas State University, San Marcos, TX 78666, USA

Absent a perceived motive for deception, people will infer that a message source is honest. As a consequence, confessions should be believed more often than denials, true confessions will be correctly judged as honest, and false confessions will be misjudged. In the first experiment, participants judged true and false confessions and denials. As predicted, confessions were judged as honest more frequently than denials. Subsequent experiments replicated these results with an independent groups design and with a sample of professional investigators. Together, these three experiments document an important exception to the 50%+ accuracy conclusion, provide evidence consistent with a projected motive explanation of deception detection, and highlight the importance of the content-in-context in judgmental processes.

doi:10.1111/j.1468-2958.2009.01369.x

Perhaps the most widely accepted and most well-documented conclusion in deception research is that people are only slightly better than chance at detecting deception. This conclusion is supported by more than 200 studies (Bond & DePaulo, 2006) and has become almost universally accepted in the literature (e.g., Burgoon, 2005; Kassin, Meissner, & Norwick, 2005; Vrij, 2000). The research leading to this conclusion, however, is limited in important ways, and the generality of this conclusion limited accordingly (Levine, Kim, Park, & Hughes, 2006; Levine, Park, & McCornack, 1999; Park, Levine, McCornack, Morrison, & Ferrara, 2002). For example, the truths and lies that are judged in the typical deception detection experiment are often de-contextualized so that message content in relation to the situation is of little help in ascertaining message veracity (Park et al., 2002). Furthermore, in the typical deception detection experiment, there is no way for message judges to assess the

Corresponding author: Timothy R. Levine; e-mail: levinet@msu.edu
A previous version of this article was presented at the annual meeting of the International Communication Association, San Francisco, CA, in May 2007. This research was completed with the support of the National Science Foundation (SBE0725685).

overall deception base rate or to sort message sources according to their differential motives to lie.

To illustrate this point, consider the findings of the well-known conformity experiments of Solomon Asch (1956). Asch showed subjects a series of three lines varying in length and asked them which of the lines matched the length of a comparison line. The task was easy for subjects, and when subjects judged the lines individually, they were correct more than 99% of the time. Other subjects were asked to announce their judgments out loud in the presence of seven to nine others, most of whom had previously stated their judgments. The others were actually research confederates who frequently gave wrong answers. The purpose of the experiment was, of course, to see how often the real subjects would conform to the opinions of the majority when the majority opinion was obviously wrong. As is now well known, subjects, on average, conformed on about one-third of the trials.

Although usually not thought of in this way, the Asch (1956) studies were also deception detection experiments. Subjects in the experiment were exposed to between 84 and 108 blatant lies. Asch did extensive debriefing with his subjects and it is clear that very few of them concluded that the confederates were lying. As Asch observed:

> Instances of suspicion were rather infrequent. One would expect distrust to grow as the majority continued to err. [But] [b]efore his [the subject] suspicions had the opportunity to take root, he had unwittingly come to doubt himself and to seek explanations in other directions. (p. 29) Most subjects did not suspect that the majority judgments were not genuine. Suspicion at times occurred only as an hypothesis which, like many others, was rejected. (p. 31).

Thus, the accuracy of detecting lies in the Asch experiments approached zero. This is especially striking because all the subjects in the Asch studies had the truth literally right before their eyes.

An obvious question, therefore, is why are the Asch findings so discrepant from the findings of lie detection literature?

The answer, we believe, is simple and obvious, but one with important implications that have been largely ignored in deception research. People in deception detection experiments know they are in a deception detection experiment. They are not very good at distinguishing truths from lies, but they do infer that some substantial proportion of the messages they are judging must be lies. Otherwise, the researcher would not be asking them to make truth–lie judgments. The subjects in the Asch (1956) experiments, however, had no reason to expect deception and consequently did not infer it or even seriously consider it as a possibility.

We propose that people often rely on very simple heuristics, schemas, or decision rules to determine if they need to be concerned about possible deception. Following Kahneman, Slovic, and Tversky (1982), cognitive heuristics are often thought of as leading to biased, irrational conclusions. While it is certainly the case that heuristic processing can lead to biased and less than optimal conclusions when used in situations where more deliberative decision making is a viable option, the view

of heuristics as inherently biased or flawed processing has been changing. More recent research suggests that heuristics are often both rational and highly adaptive, and they evolve precisely because they are adaptive (Gigerenzer & Todd, 1999). This more recent view of heuristics presumes a bounded, ecological, and social rationality, where decision making is, of necessity, constrained by time, availability of information, computational resources, context, and the need to interact with and maintain relationships with others (Gigerenzer & Todd, 1999).

There are likely situations in which people know they need to be wary of potential deception, and there are other situations where the possibility of deception is not actively considered. Similarly, there are things that people might lie about and things they would not lie about. Given that people usually deceive for a reason (Bok, 1999; Levine, Kim, & Hamel, 2007), and that belief is a cognitive default (Gilbert, 1991), absent an obvious motive for deception, people should believe. In such instances, the truthful messages will be correctly labeled as honest at rates approaching 100% accuracy, but deceptive messages will go undetected and accuracy will drop to near zero.

One type of message that should be widely believed is the confession. When accused, people have an obvious motivation to deny wrongdoing, and thus denials might be believed or disbelieved. A confessor, however, lacks an obvious motive for deception and thus should be almost universally believed. If so, true confessions will be correctly judged as true and false confessions will almost never be correctly identified as fabrication. Consequently, the current conclusions about accuracy of deception detection being just above 50% will apply only to denials, and accuracy rates for true and false confessions will depart radically but predictably from the findings of previous research depending on the veracity of the confession.[1]

Deception detection research

Much research attention has been devoted to identifying the factors that affect people's ability to detect deception by others. Across studies, people are, on average, 54% accurate in deception detection experiments (Bond & DePaulo, 2006). This value is significantly greater than the 50% base chance rate, and it is very stable. Very few studies report values below 45% or above 65%. Although a number of variables affect detection accuracy rates, the impact of most of them is small in absolute terms (Levine et al., 1999).

There are several reasons why people tend to be inaccurate lie detectors, at least in deception detection experiments. First, there do not appear to be any strong, across-individual and across-situation behavioral cues that make high accuracy possible. Although statistically reliable cues to deception are observed across studies (DePaulo et al., 2003), these cues are too inconsistent to be of much use in detecting specific instances of deception (Levine, Feeley, McCornack, Harms, & Hughes, 2005). Second, people pay attention to cues that lack diagnostic utility. For example, there is a widely held, cross-cultural belief that liars do not look other people in

the eye (Bond & The Global Deception Research Team, 2006). Yet truth-tellers and liars do not differ in eye behavior, and eye gaze has no diagnostic utility (DePaulo et al., 2003). Third, research procedures preclude much potentially useful information for detecting lies. Research indicates that when people do detect lies in everyday life, it is often done well after the fact, and on the basis of information other than at-the-time source verbal and nonverbal behavior (Park et al., 2002). Outside the deception laboratory, detection is often based on inconsistencies with prior knowledge, information from third parties, confessions, and physical evidence (Park et al., 2002). Such information is not available in most deception detection experiments. Finally, people are often truth-biased, and often fail to even consider the possibility of deceit (Levine et al., 1999).

Truth-bias refers to the tendency to believe another person independent of actual message veracity (Levine et al., 2006). Truth-bias likely stems from how people mentally represent true and false information (Gilbert, 1991) and from tacit assumptions that guide communication (Grice, 1989; McCornack, 1992). Truth-bias is more pronounced in face-to-face interaction (Buller, Strzyzewski, & Hunsaker, 1991), when communicating with relationally close others (McCornack & Parks, 1986), and when people are not primed to be suspicious (McCornack & Levine, 1990). Because people are more likely to judge messages are truthful than deceptive, people are more likely to be correct at judging truths than lies (the ''veracity effect''; Levine et al., 1999, 2006). Accuracy for truthful messages is often well above 50% and accuracy for lies is often below 50%. Furthermore, so long as people are truth-biased, the greater the proportion of honest messages judged, the greater the percentage of judgments that are likely to be correct (Park & Levine, 2001; Levine et al., 2006).

Confessions

People are likely to judge confessions and denials differently. Confessions are admissions of wrongdoing, and confessions are one reason why some lies are uncovered (Park et al., 2002). Confessions can be solicited under interrogation, they can be spontaneous and provided without prompting, or they are sometimes inadvertently leaked. In Park et al.'s (2002) recall data, approximately 35% of discovered lies involved one of these forms of confession. Only information from third parties was a more common method of discovery.

Most research on confessions is in the legal and criminal justice context. The research focuses on whether false confessions occur, factors that produce false confessions, and the impact of confession evidence in the criminal justice system. Research finds evidence that false confessions do occur, that certain interrogation practices can produce false confessions, that confessions are often believed, and that instances of wrongful convictions based on false confessions exist.

Confessions are highly believable. In mock jury studies, confessions yield substantially higher conviction rates than eye witness testimony (Kassin & Neumann, 1997) and confessions retain their influence even when jurors learn that the confessions

were made under duress or when they are instructed to disregard the confession evidence (Kassin & Sukel, 1997). Case studies of wrongful convictions indicate that false confessions can lead investigators, prosecutors, judges, and juries to dismiss alternative evidence suggesting innocence (Leo & Ofshe, 1998).

Research also shows that confessions are not always honest or accurate. Experimental research documents that although guilty individuals are more likely to confess than innocent persons, innocent people sometimes do confess (Russano, Meissner, Narchet, & Kassin, 2005). In fact, situations can be constructed where all innocent participants sign a confession (Kassin & Kiechal, 1996). Some research suggests that high-pressure interrogation strategies and the use of false evidence ploys produce higher confession rates (Kassin & Kiechel, 1996; Russano et al., 2005), whereas other findings suggest that individual differences may be central (Blair, 2007). Case studies suggest that both coercive interrogations and individual differences (e.g., mental defect, juvenile defendants) are associated with wrongful convictions based on false confessions (Blair, 2005). Regardless of the reasons, false confessions do happen and can be made to happen.

Case studies of wrongful convictions also provide further evidence of false confessions. People confess to crimes that never happened, and evidence has conclusively documented cases in which a person who confessed to a real crime could not have committed that crime (Leo & Ofshe, 1998). For example, of the DNA exonerations identified by the Innocence Project, a substantial number have included false confessions on the part of the wrongfully convicted (Scheck, Neufeld, & Dwyer, 2000). One instance has been documented where a person was wrongfully executed on the basis of a false confession (Leo & Ofshe, 1998). Thus, not only do false confessions happen, but a failure to uncover them can lead to dire consequences. Thus, a comparison of deception detection accuracy for confessions and denials is warranted.

A projected motive model

The central premise guiding the current study is that projected source motive has a strong influence on veracity judgments. Although research shows that people are more often truth-biased than not, truth-bias rates vary more from study to study than detection accuracy rates (Bond & DePaulo, 2006). As truth-bias increases, honest messages are more likely to be correctly identified, and accuracy rates for lies decrease (Levine et al., 1999, 2006). Therefore, factors that impact truth-bias can have a large impact on detection rates when truth accuracy is calculated separately from lie accuracy. Projected motive should have a strong and predictable impact on truth-bias, and as a consequence, systematically affect detection accuracy.

In her ethical analysis of lying, Bok (1999) advances the principle of veracity. The principle of veracity is that ''truthful statements are preferable to lies in the absence of special considerations. Lying requires explanation whereas truth ordinarily does not'' (Bok, 1999, p. 30).

Thus, Bok points out a moral asymmetry between truth and deception such that deception requires justification whereas truth does not. Plausible corollaries of the principle of veracity are that people generally will not seek to deceive when honesty will work just as well, that people therefore only deceive when they are motivated to do so (i.e., they will be honest absent special motivation), and that people think that others lie for a reason.

The current argument presumes that this applies not only to moral judgment, but also more generally to social behavior and person perception. People most often will act in accordance with the veracity principle, and people likely believe that others follow it too. If this is the case, then when considering if a message might be deceptive, people will consider if the message source has reason to lie. If there is no obvious motive for deception, then a person will be presumed to be honest.

There is much research that is generally consistent with this line of argument. Research on how people mentally represent information suggests that belief is a default, and disbelief requires active processing (Gilbert, 1991). Research on attributions suggests that the robust tendency to take others' behavior at face value is negated by suspicion of ulterior motive (Fein, 1996; Fein & Hilton, 1994; Fein, Hilton, & Miller, 1990). Information related to an ulterior motive leads to active and less biased processing. Classic research on source credibility finds that sources who argue against their own interests (and consequently lack motive to deceive) are more credible (Walster, Aronson, & Abrahams, 1966). Thus, research finds that the tendency to believe is pervasive, but it is minimized or overcome by information that a source has a motive to deceive.

The projected motive model suggests that confessions and denials should be judged very differently. In most cases, there is no obvious motivation for a false confession, and a rational person is unlikely to make a false confession unless pressured to do so. Because confessions involve admission of wrongdoing, there is presumably little to gain but much to lose by lying about one's guilt. If people project source motive and take these projections into account when making veracity judgments, then confessions should be judged as honest because they lack a motive for deception. In the case of denials, however, the message source has a clear motive to deceive.

Thus, a person who denies wrongdoing may or may not be believed depending on the sincerity of their presentation and other factors that have been shown to affect honesty judgments and detection accuracy. This reasoning leads to the first hypothesis.

H1: Confessions will be judged as honest with much greater frequency than denials.[2]

Levine et al. (1999, 2006) note that as truth-bias increases, accuracy at detecting truths increases whereas accuracy at identifying lies drops. Because confessions should be highly believable, truth-bias for confessions will be extreme. This leads to the following three interrelated hypotheses.

H2: Detection accuracy for true confessions will be high (e.g., substantially above 54%).

H3: Detection accuracy for false confessions will be low (e.g., substantially below 54%).

H4: Detection accuracy for true confessions will be greater than accuracy rates for true and false denials, which, in turn, will be greater than detection accuracy for false confessions.

Current studies

Overview

This research was carried out in several phases. First, honest and deceptive denials and confessions were videotaped for use in the deception detection phase of the research. A different set of participants viewed the videotaped messages and made veracity judgments, which were scored for accuracy. Two replications followed, one with denials and confessions as an independent group factor, and the second with a nonstudent sample of professional investigators. All phases of data collection were IRB approved.

Stimulus materials

Sixty-eight U.S. undergraduates participated in the message generation task, although the first eight sessions were run as practice and were not used to create the stimulus materials. The participants were recruited from a large basic course that enrolls largely freshman nonmajors. The study was referred to as the ''trivia game study'' and participants were told that the purpose of the study involved investigating teamwork processes. Each experimental session involved four individuals: the actual participant, hereafter *P*; the confederate, *C*; the experimenter, *EX*; and the principal investigator, *PI*. The roles of *C*, *EX*, and *PI* were played by the same individuals throughout, and the behaviors of each were scripted, well rehearsed, and held constant.

*P*s arrived at the lab individually and paired with *C*, who they believed to be another participant and their partner in the experiment. The same female *C* was used throughout, and none of the *P*s reported suspecting that *C* was anything other than another participant. *P*s were greeted by the *PI*, and were introduced to *EX*, who gave instructions, administered the trivia game, and conducted a postgame videotaped interview. *P*s were seated at a small table next to *C*, across from *EX*, and with their back to the door.

All *P*s played a trivia game for a monetary prize in addition to standard research credit. They were told that they would be working as a team with another participant, and that the team who answered the most questions correctly would win $20 each. The questions were extremely difficult and few *P*s knew the answers to more than one of the 10 questions.

Between the third and fourth questions, a cell phone ring could be heard in an adjoining room, followed by the muffled voice of the *PI*. The *PI* then burst into the room where the trivia game was in progress, and told *EX* that there was an emergency

phone call from daycare, that the call was in reference to *EX*'s son, and that *EX* needed to take the call immediately. The *PI* told *P* and *C* to wait in the room, and the *PI* and *EX* rushed out, loudly closing a series of three doors behind them. The answers to the trivia questions were left in a folder on the desk where *EX* had been sitting. It was at this point that the cheating induction took place.

According to a randomized, counterbalanced, and predetermined schedule, the *C* attempted to instigate cheating during more than half of the sessions. In the cheating condition, *C* noted that she believed the answers were in the folder on the desk, that she desired the monetary reward, and proposed that *P* and she cheat in order to improve their scores and win the money. *C* did not excessively pressure reluctant *P*s. In the no cheating condition, the *C* did not attempt to instigate cheating, and engaged in small talk with *P* if *P* initiated talk. Otherwise, *C* studied. Both *EX* and *PI* were blind to condition.

After about 5 minutes, *EX* and *PI* returned, and the trivia game resumed. Following the last question, *EX* informed *P* and *C* that they would be interviewed separately, with *EX* interviewing *P* and *PI* interviewing *C* in an adjoining room. *P* was seated in a chair and given a lapel microphone. A video camera on a tripod was positioned across the room, and the interview was videotaped. The interview contained seven questions asking about the strategy used and the role of teamwork. *P*s were specifically asked if they had cheated and why they should be believed.

Approximately half of the *P*s in the cheating condition actively participated in cheating. Of those, approximately half denied cheating during the interview, and half confessed during the interview. Those interviews where cheaters confessed counted as true confessions. Not a single noncheating *P* falsely confessed. To obtain false confessions, seven noncheaters were asked to lie on the interview, and say that they had cheated when in fact they had not. This allowed confessions and denials to be crossed with honest and deceptive answers in the subsequent detection experiments.

The videotapes were digitized and segmented into interviews. Fifteen usable honest denial interviews, seven usable deceptive denials, seven real confessions, and seven false confessions were obtained. Veracity-ambiguous statements were not used. Each interview lasted approximately 2 minutes.

Study 1

Method

Participants. One-hundred and twenty-seven U.S. undergraduate students (42 men, 85 women) participated in the first deception detection experiment. Participants were between 18 and 41 years old ($M = 20.5$, $SD = 2.69$). All received class research credit in exchange for their participation.

Design. The design was a 2 × 2 fully repeated measures experiment crossing truths and lies with confessions and denials. All participants watched and judged a series of 27 interviews containing true and false denials and confessions. Truth-bias and detection accuracy were the dependent variables.

Stimulus material. Of the usable interviews obtained from the message generation task, 27 were utilized in the first experiment. Six of the 15 honest denial interviews were randomly selected for use, whereas all seven of the false denials, seven honest confessions, and seven false confessions were used.[3] The order of the 27 interviews was determined by random, and then burned on to a DVD for later playback.

Procedure and measures. Participants signed up online for an experimental session, and the experiment was held in a multimedia classroom with 5 to 16 individuals per session. Upon arrival, participants were seated at one of the several desks in full view of a large video projection screen. Participants were told that the study was about ''perceptions of others' communication.'' Instructions followed the consent procedure. All participants were given identical instructions, which included the following:

> We are interested in people's perceptions of others' communication. You will be shown a series of interviews about the role of teamwork in a trivia game. The people on the videotape played a trivia game with a partner for a cash prize. All the people were given the opportunity to cheat. Some cheated. Others did not. After they completed the game, they were interviewed about their performance. The questions asked were always the same. They were asked to explain their performance and asked about the role of teamwork. They were also asked if they cheated in the game. We would like to know if you believe them about whether or not they cheated. After watching each segment, check whether or not you believe the person who was interviewed.

The questionnaire provided a forced-choice pair of response options for each segment. These read ''I think the person was honest about whether or not they cheated'' and ''I think the person was lying about whether or not they cheated.'' On the basis of these responses, truth-bias was scored as the percentage of messages judged honest, and accuracy scores were created as the percentage of messages judged correctly.

Results

The first hypothesis predicted that confessions would be judged as honest with much greater frequency than denials. The data were clearly consistent with this hypothesis. True confessions were believed 94.8% of the time and 88.4% of false confessions were believed. By contrast, 56.1% of true denials and 47.4% of false denials were judged as honest. The main effect for difference between confessions and denials was statistically significant and substantial, $F(1,126) = 555.07$, $p < .001$, $\eta^2 = .64$.[4] The main effect for message veracity was also statistically significant, but much weaker, $F(1,126) = 30.82$, $p < .001$, $\eta^2 = .02$. The two-way interaction was not statistically significant, $F < 1.00$, $\eta^2 = .00$.

The second, third, and fourth hypotheses concerned detection accuracy. It was predicted that detection accuracy for true confessions would be above 54%, detection accuracy for false confessions would be below 54%, and detection accuracy for true

and false denials would fall between these extremes. The data were consistent with these hypotheses. True confessions were correctly judged with 94.8% accuracy (95% CI, 93.3–96.4%), whereas only 11.6% (95% CI, 8.6–14.5%) of false confessions were correctly identified as lies. Accuracy was 56.1% (95% CI, 52.7–59.6%) for true denials and 52.6% (95% CI, 48.9–56.4%) for false denials. Planned contrasts showed that all pairs were significantly different except that true and false denials did not differ from each other. The main effect for confessions–denials on accuracy was not statistically significant, $F < 1.00$, $\eta^2 = .00$. The main effect for message veracity was statistically significant and substantial, $F(1,126) = 738.01$, $p < .001$, $\eta^2 = .43$, as was the two-way interaction, $F(1,126) = 555.07$, $p < .001$, $\eta^2 = .36$. Accuracy means are presented in Figure 1.

Discussion

The results were dramatic. Confessions were highly believable. In terms of raw percentages, confessions were judged as truthful more than 90% of the time regardless of their actual veracity. Denials, in contrast, were believed just over half the time. The confession–denial induction explained 64% of the variance in veracity judgments.

As a consequence, participants showed exceptionally high levels of accuracy (94.8%) for true confessions and absolutely dismal levels of raw accuracy for false confessions (11.6%). These percentages contrast dramatically with the 56.1% and 52.6% accuracy rates for true and false denials. These huge differences in accuracy are a direct function of differential believability. The more believable a message, or the more truth-biased the message judge, the greater the truth accuracy and lower the lie accuracy (Levine et al., 1999; Park & Levine, 2001). Because confessions are highly believable, people almost always make correct judgments when the confessions are true and incorrect judgments when they are false.

While it was anticipated that confessions would be believed more than denials, the magnitude of the observed difference was greater than anticipated. Truth-bias levels were higher for confessions (cf. Kassin et al., 2005) and lower for denials (cf. Levine et al., 2006) than previous research suggests. The large differences may be partially attributable to the repeated measures design, and specifically the interplay between contrast and demand effects.

Because the current study involved a repeated measures design, perceptual contrast was possible. Confessions were predicted to be more believable than denials, and the participants in our research were exposed to both. This may have had the effect of increasing the frequency of honesty judgments for confessions and at the same time lowering the frequency of honesty judgments for denials in comparison with what might have been obtained from an independent groups design. In Kassin et al. (2005) and Levine et al. (2006), participants saw either confessions or denials, but not both. Thus, contrast was possible in the current study, and it would function to enhance differences between denials and confessions.

Such a contrast effect could be exacerbated by the demand effects inherent in most deception detection studies. In order to assess accuracy, subjects are asked

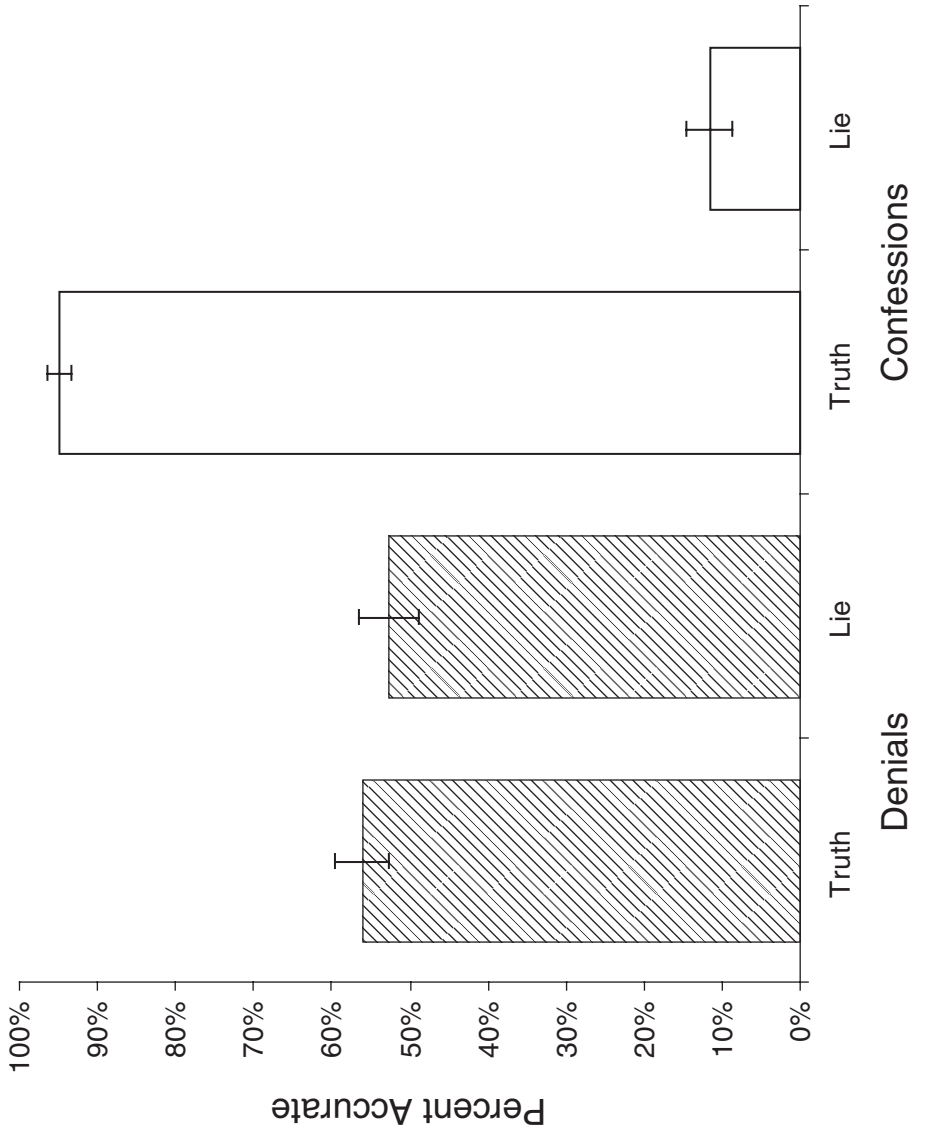

Figure 1 Mean accuracy (and 95% confidence intervals) of deception detection for true and false denials and confessions in Study 1.

to make veracity judgments. Even if they are not informed that the study is about deception detection (and they usually are in this area of research), it is not difficult for the curious participant to figure out what the study is about. If the study is about deception detection, it follows that some of the messages are probably deceptive, and the participant can infer that they are supposed to guess lie for some portion of the time. If participants saw only confessions, as in Kassin et al. (2005), then they could reasonably presume that some must be false, and lower levels of truth-bias result. If this reasoning about contrast and demand is correct, then we would expect the current hypotheses to hold with an independent groups design, but the effect size would be smaller and possibly less ecologically valid. This reasoning was tested in a second experiment.

Study 2

Method

Participants. Sixty-eight undergraduate students (34 men, 34 women) between the ages of 18 and 22 years ($M = 19.4$, $SD = 1.05$) participated in the second deception detection experiment. All received class research credit in exchange for their participation.

Design. The design was a 2 × 2 mixed model experiment with confessions and denials as the between-subjects factor and message veracity as the within-subjects factor. Participants watched and judged a series of interviews containing true and false confessions ($n = 31$) or true and false denials ($n = 37$). Truth-bias and detection accuracy were the dependent variables.

Stimulus material. From the pool of usable interviews obtained from the message generation task of the "trivia game study," six true confessions, six false confessions, six true denials, and six false denials were randomly selected. The 12 honest and deceptive confessions and 12 honest and deceptive denials were randomly ordered and burned onto two separate DVDs for later playback.

Procedure and measures. The procedure was identical to Study 1 except, unlike the first experiment, participants in the second viewed and judged confessions or denials only, rather than both. The first experimental session was randomly determined to be a denial condition, and subsequent sessions were alternated between confession and denial conditions until at least 30 individuals had participated in the given condition. The questionnaire provided a forced-choice pair of response options for each interview as in Study 1, which read "I think this person was honest about whether or not they cheated" and "I think this person was lying about whether or not they cheated." On the basis of these responses, truth-bias was calculated as the percentage of messages judged honest and accuracy scores were calculated as the percentage of messages judged correctly.

Table 1 Accuracy for Truthful and Deceptive Confessions and Denials

	Confessions		Denials	
Experiment	Truth (%)	Lie (%)	Truth (%)	Lie (%)
Study 1	94.8	11.6	56.1	52.6
Study 2	86.6	26.3	61.7	49.1
Study 3	86.0	23.4	39.8	21.5

Results

As in Study 1, the data were again consistent with the first hypothesis predicting that confessions would be judged as honest with much greater frequency than denials. True confessions were believed 86.6% of the time and 73.7% of false confessions were believed compared with 61.7% of true denials and 50.9% of false denials. The main effect for confessions–denials was statistically significant and substantial, $F(1,66) = 42.01$, $p < .001$, $\eta^2 = .26$, partial $\eta^2 = .39$. The main effect for message veracity was also statistically significant, but much weaker, $F(1,66) = 15.24$, $p < .001$, $\eta^2 = .06$. The two-way interaction was not statistically significant, $F < 1.00$, $\eta^2 = .00$.

The detection accuracy results were also consistent with Study 1. True confessions were correctly judged with 86.6% accuracy (95% CI, 79.6–93.5%), whereas only 26.3% (95% CI, 19.1–33.5%) of false confessions were correctly identified as lies. Accuracy was 61.7% (95% CI, 54.1–69.3%) for true denials and 49.1% (95% CI, 43.7–54.5%) for false denials. Planned contrasts showed that all pairs were significantly different at $p < .005$. The main effect for confessions–denials on accuracy was not statistically significant, $F < 1.00$, $\eta^2 = .00$. The main effect for message veracity was statistically significant and substantial, $F(1,66) = 98.34$, $p < .001$, $\eta^2 = .39$, as was the two-way interaction, $F(1,66) = 42.01$, $p < .001$, $\eta^2 = .17$. Accuracy means are presented in Table 1.

Discussion

With a couple of minor qualifications, the findings from the first experiment were replicated with an independent groups design. Confessions were believed more than denials, high accuracy was observed for true confessions, and low accuracy was again found for false confessions. As expected, however, the differences, while still substantial, were not as dramatic. The effect size for the confessions–denials difference was smaller, and accuracy for false confessions was higher than in Study 1.

One possible limitation in both studies is the reliance on student judges. The literature on the impact of college student samples in deception detection experiments is mixed. On one hand, meta-analysis suggests that students and those with professional expertise do not differ on either accuracy or the tendency to believe (Aamodt & Custer, 2006; Bond & DePaulo, 2006). On the other hand, individual studies sometimes provide evidence of the superiority (Ekman, O'Sullivan, & Frank, 1999) or inferiority (Meissner & Kassin, 2002) of professional liar catchers relative

to college students. Professional experience might improve performance or it might lead to overconfidence, a guilt-bias, or both, which lower performance. Because of the implications of the current research in applied settings, it seemed prudent to replicate the findings with a nonstudent sample of judges.

Study 3

Method

Participants. Thirty-one new and seasoned professional investigators (12 men, 18 women, 1 missing) taking part in a private interrogation training seminar participated in the third deception detection experiment. Eleven were employed by a large metropolitan police department (eight detectives, two patrol officers, and one sergeant) and 13 were fraud investigators for banks. The professional investigative experience of these participants ranged from 0 to 35 years, with 6 individuals having less than 2 years experience, 6 with 2–8 years experience, 14 with 10–20 years, 2 with 30+ years, and 2 with unreported experience. Participants were between 20 and 60 years old ($M = 42.0$, $SD = 10.94$, 1 missing). Participants received no compensation in exchange for their participation.

Design. The design was a 2 × 2 fully repeated measures experiment. All participants viewed and judged a series of 16 interviews consisting of true and false denials and confessions. Truth-bias and detection accuracy were the dependent variables.

Stimulus material. Sixteen interviews were randomly selected for use from the pool of usable interviews obtained from the message generation task previously described. Four true confessions, four false confessions, four true denials, and four false denials were randomly ordered and prepared for later playback.

Procedure and measures. During a training seminar, participants viewed and judged the 16 interviews. The questionnaire provided a forced-choice pair of response options for each interview identical to Studies 1 and 2. However, because of sound difficulties during playback, responses to three interviews (one each true denial, false denial, and true confession) were not scored. Truth-bias was calculated as the percentage of messages judged honest and accuracy was scored as the percentage of messages judged correctly.

Results

The data were once again consistent with the first hypothesis predicting that confessions would be judged as honest with much greater frequency than denials. True confessions were believed 86.0% of the time and 76.6% of false confessions were believed, compared with 39.8% of true denials and 78.5% of false denials. The main effect for confessions–denials was statistically significant and substantial, $F(1,30) = 23.10$, $p < .001$, $\eta^2 = .16$, partial $\eta^2 = .44$. The main effect for message veracity was also statistically significant, but weaker, $F(1,30) = 7.71$, $p < .01$, $\eta^2 = .07$. The two-way interaction was statistically significant and substantial, $F(1,30) = 75.74$,

$p < .001$, $\eta^2 = .19$. True denials were believed substantially less often than the other three types of messages.

The detection accuracy results were also consistent with the other two studies for confessions, but not denials. True confessions were correctly judged with 86.0% accuracy (95% CI, 77.8–94.2%) whereas only 23.4% (95% CI, 15.2–31.6%) of false confessions were correctly identified as lies. Surprisingly, accuracy was only 39.8% (95% CI, 27.8–51.8%) for true denials and a meager 21.5% (95% CI, 13.4–29.6%) for false denials. The main effect for confessions-denials on accuracy was statistically significant, $F(1,30) = 75.74$, $p < .001$, $\eta^2 = .13$, and the main effect for message veracity was statistically significant, $F(1,30) = 64.07$, $p < .001$, $\eta^2 = .38$, as was the two-way interaction, $F(1,30) = 23.10$, $p < .001$, $\eta^2 = .11$. Accuracy means are presented in Table 1. Planned contrasts showed that all pairs were significantly different at $p < .01$ except false confessions and false denials, which did not differ. One sample t-test showed that all accuracy rates differed from chance at $p < .001$ except true denials.

The correlations between years of experience and average accuracy and average truth-bias were also examined. Both were negative, but not significantly so; $r(29) = -.27$, $p = .16$ and $r(29) = -.12$, $p = .55$. None of the within-condition correlations with experience were statistically significant, nor did condition appear to moderate these correlations.

General discussion

The second and third studies replicated the results of the first experiment. Confessions are more often believed than denials regardless of their actual veracity. The confession–denial induction explained 16–64% of the variance in veracity judgments. Presumably as a consequence, participants showed consistently high levels of accuracy (86.0–94.8%) for true confessions and consistently low levels of accuracy for false confessions (11.6–26.3%). These percentages contrast dramatically with the 54% accuracy rates for true and false denials reported in meta-analysis. These findings held for both repeated measures and independent groups designs and for college students and professional investigators alike. The results for all three experiments are summarized in Table 1.

A projected motive model predicts and explains these findings. The logic of this explanation is that people presume others lie for a reason. When people have an obvious motive to deceive, then their veracity may be questioned. If, however, no motive is apparent, or if motivational forces appear to favor honesty, then there is little reason to question a person's veracity. Because confessions involve the admission of wrongdoing, there is no obvious motivation for deception, and hence confessions are believed.

It is speculated that people have tacit and preconceived ideas about situated message content related to the probability of deception. That is, people have abstracted beliefs about what people lie about. Such beliefs are likely to be highly

conventional (i.e., shared within a message community) and tied to projected source motives. When message content is such that a potential motive for deception might be inferred, a state of suspicion is triggered, and an active assessment of veracity ensues contingent on sufficient available cognitive resources. Otherwise, the mindless default belief state remains intact and unquestioned. That is, messages are unconsciously screened for deceptive potential based on mental models of projected motives, and when message content suggests such a motive for deception is present, the message is flagged for active scrutiny. This view reflects a merger of Fein's (Fein, 1996; Fein & Hilton, 1994; Fein et al., 1990) work on attributions with Gilbert's (1991) research on how mental systems operate, and is consistent with the pattern of results observed in the current article.

One curiosity is the surprisingly low level of accuracy for denials with the experts in Study 3. The experts averaged only 21.5% accuracy for false denials, a value significantly and substantially below chance accuracy, $t(30) = 7.20$, $p < .001$. Further, a guilt- or investigator-bias cannot fully explain this poor performance because experts performed poorly on both honest and dishonest denials, and worse on lies than truths, $t(30) = 2.66$, $p < .02$. Further still, although not statistically significant, years of experience was negatively correlated with accuracy ($r = -.27$). Thus, it was not the case that the less experienced judges brought down the mean. Why this was the case is unclear, but, with the exception of the true confessions, the experts systematically made incorrect judgments and they generally performed less well than the college students in Studies 1 and 2.

Perhaps the most plausible explanation for the low performance of the experts on the denials, especially the false denials, involves the interviewee's reactions to the final interview question. The last question asked why the person should be believed. This question proved challenging to deniers in general, and honest deniers in particular. Answers to the last question were typically characterized by long response latencies, speech errors, and vocal pauses. Lying cheaters likely had some idea that suspicious questioning might be forthcoming, but the honest noncheaters were often caught off guard by the question and appeared ill prepared to defend their innocence. If the experts were sensitive to these nonverbal disruptions and inferred that these overt signs of cognitive effort and arousal were indicative of guilt and deception, then it becomes understandable why they systematically tended to disbelieve honest denials more than the student judges.

The current findings have several important implications. First, the current results document an exception to the widely accepted 50%+ accuracy conclusion. As Levine et al. (1999) observed, the slightly-better-than-50%-accuracy conclusion is obtained by averaging across truths and lies where there is an equal number of each. As truth-bias increases, truth accuracy and lie accuracy systematically diverge. The current data demonstrate Levine et al.'s point nicely. When accuracy is averaged across true and false confessions, the current participants were 54.78% accurate, a value nearly identical to the 54.38% accuracy observed for denials in meta-analysis. However, because confessions were judged as honest 84% of the time independent of

veracity, accuracy was 89% for honest confessions and only 20% for false confessions. It would be a mistake therefore to conclude that the 50+% accuracy applies equally to true and false confessions. Averaging across truths and lies obscures an important difference.

The accuracy findings in the literature are often cited in support of the conclusion that people are poor lie detectors. The current findings suggest a potential qualification to this conclusion. Whereas the current findings, too, suggest that people are poor at detection at the level of the individual message, the consideration of actual base rates (cf. Levine et al., 2006) suggests a potentially important caveat. In the stimulus creation part of the study, approximately half of those who were prompted to cheat actually did so. Further, of the denials actually shown to participants, approximately half were actually honest. Overall, participants judged about half of the denials as honest. Although they were not very good at determining which were which, participants did, on average, get the proportion about right. For confessions, however, not a single noncheater confessed on his or her own. That is, without researcher intervention, all the confessions would have been truthful, and had some noncheaters not been instructed to confess, accuracy for confession would have been near perfect. Viewed in this way, the current participants got it pretty close to right. Because most confessions are probably honest, people will be right most of the time. People, however, are susceptible to a rare, but potentially costly, error.

The projected motive perspective has important theoretical implications. Considering projected motives as a primary factor in veracity judgments allowed for the a priori prediction of substantial effects ($\eta^2 = .16–.64$). The findings are huge by social science standards. Richard, Bond, and Stokes-Zoota (2003) found the mean and modal effect sizes of $\eta^2 = .04$ and .01, respectively, in their examination of 25,000 studies summarized in more than 300 meta-analyses. To the authors' knowledge, the effect sizes observed here are substantially larger than those observed for other variables in previous deception research, and current predictions cannot be (or, at least, have not been) derived from existing deception theories.[5] That this test of projected motive predictions produced such large effects suggests that theories of deception detection and veracity assessment need to account for these differences, and theories that emphasize source nonverbal displays may have misplaced priorities.

These findings provide empirical foundation for a new theory of deception called *truth-bias theory* (TBT; Levine, 2009). The four cornerstones of TBT are that people lie for a reason (Levine et al., 2007), people think other lie for a reason, people are typically truth-biased (Levine et al., 1999, 2006; Park & Levine, 2001), and that when people accurately detect deception, it is typically detected by means other than at-the-time nonverbal leakage (Park et al., 2002). The current findings provide evidence consistent with the second of the four cornerstones.

The logic that ties these four cornerstones of TBT together starts with the premise that humans, as a species, are social, and that being social requires efficient communication. Efficient communication, in turn, requires trust and belief. The tendency to believe, however, makes people vulnerable to deception. But this is an

adaptive tradeoff. The survival advantage gained from efficient communication far outweighs the costs of occasionally being duped. Rather than evolving sophisticated cognitive abilities to detect deception, which would be evolutionarily expensive, human societies instead discourage deception, at least within in-groups, through socialization. Parents in most cultures teach their children not to lie. Virtually all worldwide religions offer prohibitions against deceit. Consequently, people are reluctant to deceive without reason, and most people follow the principle of veracity. People only lie when the truth is problematic. This makes projecting motive efficient and rational, and it explains why people do it. Outside the deception lab, the probability that a message is a lie is not random, and people's judgments reflect this.

Finally, the current results have important practical implications. These findings add to literature showing that confessions tend to be believed, that the veracity of false confessions is likely to be misjudged, and that law enforcement professionals are not adept at separating true from false confessions. This has huge implications in the criminal justice and national security contexts where believing a false confession can not only lead to wrongful convictions but also to discontinuing searches for the truly guilty. The solution, of course, is to verify the veracity of confessions through additional external information rather than accepting them at face value. Blair (2006) has demonstrated that this can be done with a reasonable level of accuracy without any training.

One of the strengths of the current research is the creation of relatively high-stakes and unsanctioned truth and lies where ground truth was certain. Sanctioned lies are where the message sources lie because they are told to by the researchers and unsanctioned lies involve sources deciding for themselves whether or not to lie. A technical limitation in the study, however, was the unavoidable confounding of denials and confessions with sanctioning of deception. The false confessions were sanctioned while the false denials were unsanctioned. Ideally, of course, all the lies would have been both unsanctioned and high-stakes. But, not surprisingly, no noncheater spontaneously lied in the interview. Thus, experimenter instructions to lie were required to obtain false confessions. The concern is that low-stakes, sanctioned lies may be more difficult to detect than high-stakes, unsanctioned lies. This confound, however, cannot explain the current pattern of results. Most deception detection studies use sanctioned, low-stakes lies, yet detection rates for lies in the low teens or twenties are literally never observed. Hence, the intended induction (i.e., that the messages were confessions) rather than the confound (sanctioning) provides the most plausible explanation for the results.

In conclusion, this experiment had people assess the veracity of honest and deceptive confessions and denials. On the basis of the projected motive logic, it was predicted and found that confessions would be believed more frequently than denials, that people would correctly believe true confessions, and mistake false confessions as being true. These findings have important practical and theoretical implications, and show that accuracy is not always around 50%.

Notes

1 The 54% accuracy finding is an average across truths and lies. Because people are typically truth-biased, truth accuracy is typically greater than lie accuracy (Levine et al., 1999). If, as we expect, people are highly accurate about truthful confessions but almost always wrong about false confessions, when averaging across truthful and false confessions, accuracy may well approximate 50%. Thus, confessions are expected to exacerbate the veracity effect, and the differences in accuracy will be apparent when looking at truths and lies separately.

2 Inconsistent with these predictions and the logic of the projected motive model, the one previous study that directly tested detection accuracy of true and false confessions found that only professional investigators and not students were truth-biased when judging confessions (Kassin et al., 2005). Kassin et al., however, did not directly compare confessions and denials. Although the Kassin et al. findings are inconsistent with the current predictions, the current authors nevertheless believe that the projected motive model is viable and that the preponderance of the existing findings (including other research by Kassin) are consistent with the prediction that confessions are more likely to be believed than not.

3 The use of six rather than seven tapes in the honest denial condition was researcher error. It was unlikely to substantially impact the results and was corrected in the second experiment.

4 All effect sizes are correctly labeled as eta squared and partial eta squared.

5 The current findings follow from previous empirical findings and from merging existing theoretical views, but existing theories of deception prioritize other variables, most notably sender nonverbal displays. Nevertheless, this is the first study (to the authors' knowledge) directly comparing true and false confessions and denials.

References

Aamodt, M. G., & Custer, H. (2006). Who can best catch a liar. *Forensic Examiner*, **15**, 6–11.

Asch, S. E. (1956). Studies of independence and conformity: I. A minority of one against a unanimous majority. *Psychological Monographs*, **70**, 1–70.

Blair, J. P. (2005). A test of the unusual false confession perspective using cases of proven false confessions. *Criminal Law Bulletin*, **41**, 127–144.

Blair, J. P. (2006, November). *The impact of external information on deception detection*. Paper presented at the annual meeting of the National Communication Association, San Antonio, TX.

Blair, J. P. (2007). The roles of interrogation, perception, and individual differences in producing compliant false confessions. *Psychology, Crime, and Law*, **13**, 173–186.

Bok, S. (1999). *Lying: Moral choice in public and private life*. New York: Vintage.

Bond, C. F., & The Global Deception Research Team (2006). A world of lies. *Journal of Cross-Cultural Psychology*, **37**, 60–74.

Bond, C. F., Jr., & DePaulo, B. M. (2006). Accuracy of deception judgments. *Review of Personality and Social Psychology*, **10**, 214–234.

Buller, D. B., Strzyzewski, K. D., & Hunsaker, F. G. (1991). Interpersonal deception II: The inferiority of conversational participants as deception detectors. *Communication Monographs*, **58**, 25–40.

Burgoon, J. K. (2005). *Truth, lies, and virtual worlds*. The Carroll Arnold Distinguished Lecture, National Communication Association, Boston.

DePaulo, B. M., Lindsay, J. J., Malone, B. E., Muhlenbruck, L., Charlton, K., & Cooper, H. (2003). Cues to deception. *Psychological Bulletin*, **129**, 74–118.

Ekman, P., O'Sullivan, M., & Frank, M. G. (1999). A few can catch a liar. *Psychological Science*, **10**, 263–266.

Fein, S. (1996). Effects of suspicion on attributional thinking and the correspondence bias. *Journal of Personality and Social Psychology*, **70**, 1164–1184.

Fein, S., & Hilton, J. L. (1994). Judging others in the shadow of suspicion. *Motivation and Emotion*, **18**, 167–198.

Fein, S., Hilton, J. L., & Miller, D. T. (1990). Suspicion of ulterior motivation and the correspondence bias. *Journal of Personality and Social Psychology*, **58**, 753–764.

Gigerenzer, G., & Todd, P. M. (1999). Fast and frugal heuristics: The adaptive toolbox. In G. Gigerenzer, P. M. Todd, & The ABC Research Group (Eds.), *Simple heuristics that make us smart*. New York: Oxford University Press.

Gilbert, D. T. (1991). How mental systems believe. *American Psychologist*, **46**, 107–119.

Grice, P. (1989). *Studies in the way of words*. Cambridge, MA: Harvard University Press.

Kahneman, D., Slovic, P., & Tversky, A. (1982). *Judgment under uncertainty: Heuristics and biases*. Cambridge, UK: Cambridge University Press.

Kassin, S. M., & Kiechel, K. L. (1996). The social psychology of false confessions: Compliance, internalization, and confabulation. *Psychological Science*, **7**, 125–128.

Kassin, S. M., Meissner, C. A., & Norwick, R. J. (2005). "I'd know a false confession if I saw one.": A comparative study of college students and police investigators. *Law and Human Behavior*, **29**, 211–227.

Kassin, S. M., & Neumann, K. (1997). On the power of confession evidence: An experimental test of the fundamental difference hypothesis. *Law and Human Behavior*, **21**, 469–484.

Kassin, S. M., & Sukel, H. (1997). Coerced confessions and the jury: An experimental test of the "Harmless Error" rule. *Law and Human Behavior*, **21**, 27–46.

Leo, R. A., & Ofshe, R. J. (1998). The consequences of false confessions: Deprivations of liberty and miscarriages of justice in the age of psychological interrogation. *Journal of Criminal Law and Interrogation*, **88**, 429–496.

Levine, T. R. (2009). *Truth-bias theory*. Unpublished manuscript, Michigan State University, East Lansing, MI.

Levine, T. R., Feeley, T., McCornack, S. A., Harms, C., & Hughes, M. (2005). Testing the effects of nonverbal training on deception detection accuracy with the inclusion of a bogus training control group. *Western Journal of Communication*, **69**, 203–218.

Levine, T. R., Kim, R. K., & Hamel, L. M. (2007). *People lie for a reason: An experimental test of the principle of veracity*. Presented at the annual meeting of the National Communication Association, Chicago.

Levine, T. R., Kim, R. K., Park, H. S., & Hughes, M. (2006). Deception detection accuracy is a predictable linear function of message veracity base-rate: A formal test of Park and Levine's probability model. *Communication Monographs*, **73**, 243–260.

Levine, T. R., Park, H. S., & McCornack, S. A. (1999). Accuracy in detecting truths and lies: Documenting the "veracity effect." *Communication Monographs*, **66**, 125–144.

McCornack, S. A. (1992). Information manipulation theory. *Communication Monographs*, **59**, 1–16.

McCornack, S. A., & Levine, T. R. (1990). When lovers become leery: The relationship between suspicion and accuracy in detecting deception. *Communication Monographs*, **57**, 219–230.

McCornack, S. A., & Parks, M. R. (1986). Deception detection and relationship development: The other side of trust. *Communication Yearbook*, **9**, 377–389.

Meissner, C. A., & Kassin, S. M. (2002). "He's guilty!": Investigator bias in judgments of truth and deception. *Law and Human Behavior*, **26**, 469–480.

Park, H. S., & Levine, T. R. (2001). A probability model of accuracy in deception detection experiments. *Communication Monographs*, **68**, 201–210.

Park, H. S., Levine, T. R., McCornack, S. A., Morrison, K., & Ferrara, M. (2002). How people really detect lies. *Communication Monographs*, **69**, 144–157.

Richard, F. D., Bond, C. F., & Stokes-Zoota, J. J. (2003). One hundred years of social psychology quantitatively described. *Review of General Psychology*, **7**, 331–363.

Russano, M. B., Meissner, C. A., Narchet, F. M., & Kassin, S. M. (2005). Investigating true and false confessions within a novel experimental paradigm. *Psychological Science*, **16**, 481–486.

Scheck, B., Neufeld, P., & Dwyer, J. (2000). *Actual innocence*. New York: Doubleday.

Vrij, A. (2000). *Detecting lies and deceit*. New York: Wiley.

Walster, E., Aronson, E., & Abrahams, D. (1966). On increasing the persuasiveness of a low prestige communicator. *Journal of Experimental Social Psychology*, **2**, 325–342.