Coping with invalid messages by increasing or decreasing processing complexity

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Lying is a fact of everyday life. DePaulo, Kashy, Kirkendol, Wyer, and Epstein (1996) report that participants from a diverse community sample disclosed that they lie in one out of five social interactions, and college students reported lying in one out of three interactions (see also DePaulo & Kashy, 1998; Feldman, Forrest, & Happ, 2002). Consumers are often exposed to invalid claims when they are given information about products. Such claims may result from deliberate attempts to mislead (e.g., Dyer & Kuehl, 1978; Mazis & Adkinson, 1976; Schul & Mazursky, 1990) or from more mundane errors that are not the consequence of an intention to deceive (e.g., when a reduced price tag is unintentionally misplaced).

This chapter reviews evidence concerning the ways in which individuals cope with invalid messages. It begins with a brief discussion of the difficulties people have in their attempts to uncover deception. Then it proceeds to examine what happens when falsehoods are detected. Are people able to ignore invalid claims? Can consumers discount a dishonest source? The chapter ends with a discussion of how people's experience with invalid messages influences their future coping with invalidity. For example, how is readers' encoding of newspaper reports modified after they find out that a particular reporter is not trustworthy? How do jurors react to new witnesses after they have been informed that another witness lied to them?

Uncovering deception in interpersonal interactions

After thousands of years of interpersonal perception human beings should have evolved into highly accurate receivers. Yet, many dozens of studies of

interpersonal perception suggest that accuracy is modest at best, attesting to the complexity of the task people face when trying to perceive others (Funder, 1995). This is especially true when the others try to mask their thoughts and feelings. As people's interpersonal perception skills have evolved, so too have their skills in masking their inner states, leading to a perpetual struggle between the former and the latter. In this battle accuracy succumbs more often than not. There is ample evidence showing that people's competency in unmasking deception is poor (DePaulo & Friendman, 1998).

Ekman and O'Sullivan (1991) examine the success of individuals whose profession involves detection of lies. They show that members of the Secret Service can uncover deception on a level which is significantly better than chance, although even these professionals are far from perfect. Notwithstanding, Ekman and Sullivan report that the performance of members of the other groups of professionals (federal poligraphers, robbery investigators, judges, and psychiatrists) was not significantly different from chance. In other words, on the average, even people whose task involves the need to identify deception could not reliably separate truth tellers from liars. Moreover, it seems that people are not aware of their poor performance, as indicated by the null relationship between confidence in detection accuracy and actual accuracy (DePaulo et al., 1997).

In this context, it is particularly interesting to explore the moderating role of the amount of information the perceiver has about the speaker. Consider the influence of perceiver-speaker acquaintance on the success of detecting deception. At first glance, the prediction seems straightforward. Since close friends are familiar with each other (Funder, Kolar, & Blackman, 1995) and tend to self-disclose, they should be more accurate than strangers in unmasking

deception. Moreover, as Miller, Mongeau, and Sleight (1986) note, in order to detect deception, perceivers must be sensitive to slight departures of verbal and nonverbal expressions from the ordinary, that is, deviations from the baseline level present during communication of truth (Feeley & deTurch, 1995). Fiedler and Walka (1993) refer to this phenomenon as nonverbal conspicuousness. Because of their familiarity with the sender of the communication, friends have a target-specific baseline with which the potentially deceptive behavior might be compared. In contrast, by definition, strangers lack baseline levels for the specific communicator. As a result, they must compare verbal or nonverbal expressions to a global baseline. Accordingly, friends should have an advantage over strangers — that is, they should be more skillful in uncovering configurations of cues associated with deceit (cf., Mann, Vrij, & Bull, 2002). Nevertheless, research exploring the effect of acquaintance on the success of detection of deception has failed to show that friends are more successful than strangers in unmasking deception (Anderson, DePaulo, Ansfield, Tickle, & Green, 1999; McCornack & Parks, 1986).

The null effect associated with acquaintance is consistent with the suggestion that face-to-face contact with the potentially deceptive target may actually interfere with the success of uncovering deception. Ruback and Hopper (1996) examined the recommendations of parole officers. Each officer made two predictions about the likelihood that an inmate would complete his or her parole successfully, the first after reading the inmate's file, and the second after interviewing him or her. The study explored whether these predictions were accurate by comparing them to the actual success of the parole. It was found that the pre-interview predictions distinguished between inmates whose parole was

revoked and those whose parole was completed successfully. In contrast, the post-interview predictions failed to distinguish between the two groups, suggesting that the parole officers became less accurate after the interview. It is interesting to note that the post-interview prediction was highly related to the parole officer's perception of the inmate's honesty during the interview. I speculate that the face-to-face interview induced a clinical or experiential mode of thinking (Einhorn, 1986; Epstein & Pacini, 1999), which may have limited the officers' ability to focus on those diagnostic cues that were useful for uncovering deception. This speculation is discussed further at the end of the chapter.

It should be noted that the impairment associated with the face-to-face interview occurred even though perceivers could have used the interview effectively to extract cues that would allow some separation of truth tellers from falsifiers. For example, Fiedler and Walka (1993) and Vrij, Edward, and Bull (2001) suggest that deceptive communication tends to be factual whereas communication of truth is associated with more perception-like qualities. Other valid cues come from the work of Mann, Vrij and Bull (2002) who examined police interviews. They suggest that when interviewees attempt to deceive they blink less frequently and make longer pauses than when they make truthful statements. However, it appears that interviewers rarely use such stylistic or behavioral cues without special coaching. Consequently, a face-to-face interview might draw the interviewer's attention from potentially diagnostic cues to non-diagnostic cues, thereby impairing detection of deception.

The inconspicuousness of cues for deception has two important consequences. First, perceivers often fail in their attempts to uncover deception. Second, because people are often aware of the difficulty involved in unmasking

deception, whenever they have to cope with potentially invalid information they tend to search for configurations of cues that might help them separate truth from falsehood and distinguish cheaters from honest persons. As we shall see in the next section, when there are many messages, some valid and some not, attempts to prepare for handling invalid messages can lead to an increase in the density of the associative network that links the valid and invalid messages. This can in turn have a profound effect on people's success in coping with invalid messages even when such messages have been identified.

Discounting invalid messages

Because using false information from others is costly, pervasive, and inherent to social life, receivers should have developed skills that allow them to discount invalid information successfully. However, as past research suggests, the success of discounting such information is limited (see more detailed reviews in Golding & MacLeod, 1998). In order to understand this outcome it is useful to consider such discounting from two vantage points: making the judgment (after one knows which messages are valid and which are not) and time of encoding (before one learns which messages are invalid). Broadly speaking, two main findings have been reported. From the perspective of judgment, discounting seems to be a correction process, with those factors that increase the magnitude of correction tending to increase the magnitude of discounting. We shall focus on one important factor, the motivation to discount. Taking the vantage point of encoding, research suggests that success in discounting varies as a function of the density of the associative links between the invalid (to-be-ignored) and valid (to-be-used) messages. However, as we shall see below, the impact of density is not as free from ambiguity as was initially assumed.

Discounting as a correction process

By definition, in order to succeed in discounting, receivers must base their judgments on the valid information only. However, because the valid information may contain meanings and associations that were added to it by the invalid information, it is not sufficient to attempt to consider the valid information "by itself" while making the judgment. Ideally, receivers could have removed the contamination by thinking only about the valid messages and encoding them again as if the invalid messages had not been presented. However, evidence suggests that re-encoding is unlikely (Schul & Burnstein, 1985; Wyer, Srull, Gordon, & Hartwick, 1982). To combat the contaminating influence produced by the to-be-ignored information, receivers could correct their initial judgment so as to remove its impact (Wilson & Brekke, 1994).

This analysis likens discounting to correction, thus predicting that, other things being equal (e.g., awareness of the bias, cognitive resources, see Martin, Seta, & Crelia, 1990; Schwarz & Bless, 1992; Strack & Hannover, 1996), as the motivation for discounting increases, discounting ought to be more successful. Generally, this seems to be the case. Evidence from two very different paradigms on this issue is discussed below.

Consider the reasons given to people for ignoring testimony in a study simulating jury decision-making. A testimony could be ruled inadmissible because the witness could not have seen the events he or she describes (e.g., Elliott et al., 1988; Hatvany & Strack, 1980; Loftus, 1974; Schul & Manzury, 1990; Weinberg & Baron, 1982), or because the testimony reflects a vested interest of the witness (e.g., Kassin & Wrightsman, 1981). In these cases there seems to be a sound reason to believe that the evidence is completely invalid. Similar types of reasons

can be found in the marketing domain. An advertisement could be found misleading because it makes false claims (see Wilkie, McNeill, & Mazis, 1984, for several real examples). Requests to ignore a message that provide substantive reasons to cast doubt on the validity of the message are termed substantive requests.

A testimony could also be ruled inadmissible because it violates the justice procedure. For example, after hearing a testimony about a recorded conversation, jurors may find that the conversation was recorded illegally, and therefore, is inadmissible and must be ignored (Carretta & Moreland, 1983; Kassin & Sommers, 1997; Lenehan & O'Neill, 1981). Under certain conditions, the jury might also be instructed to ignore prior convictions as evidence that the defendant has a bad character, or to disregard hearsay information (Pickel, 1995). In such cases the to-be-ignored testimony may or may not be true. However, regardless of its truth-value, receivers are asked to ignore the testimony because its use violates the rules of the game – the rules of evidence. Such requests are termed procedural requests. Clearly, substantive requests are stronger than procedural requests because they are based on both the motivation to be accurate and the motivation to comply with the rules of the game.

Studies that compare the two types of requests show that respondents discount invalid information more successfully when the request is substantive than when it is procedural (Golding, Fowler, Long, & Latta, 1990; Golding & Hauselt, 1994; Kassin & Sommer, 1997; Schul & Goren, 1997; Schul & Mayo, 1999). When the requests stress the unreliability of the testimony, discounting often succeeds (Elliott et al., 1988; Hatvany & Strack, 1980; Schul & Manzury, 1990; Weinberg & Baron, 1982). Failure in discounting is more prevalent when the request to ignore

a testimony is procedural (Tanford & Penrod, 1984; Pickel, 1995). Nevertheless, it should be noted that even procedural requests do lead to some sort of adjustment, so that the to-be-discounted evidence does not make its full impact.

Interestingly, the motivation to discount invalid information properly might also be influenced by manipulations that affect the respondent's perception that the invalid message has unduly contaminated his or her judgment. Based on the research on correction, it is predicted that an invalid message should be discounted more strongly when it is perceived as having a high impact on one's judgments than when it is viewed as having only little such impact. Analogous predictions have been made with respect to the correction of various other biases, such as the effect of context (Martin, 1986; Petty & Wegener, 1993), the impact of situational pressures (Gilbert & Osborne, 1989), the effect of attractiveness of the source (Petty, Wegener, & Fabrigar, 1997), and the effect of priming (Lombardi, Higgins, & Bargh, 1987; Martin, Seta, & Crelia, 1990; Strack et al., 1993; see review in Strack & Hannover, 1996). In the context of discounting, this prediction is particularly interesting because it suggests that, other things being equal, it should be easier to discount a highly persuasive claim (i.e., one that has a strong impact on judgments) than a mildly persuasive one, when each is found to be invalid at a later point in time. That is to say, even though the more persuasive claim is more likely to sway receivers and affect their judgment, receivers are more likely to be aware of its influence and therefore more likely to correct for its contamination. As a result, following a discounting request, a weak claim may have more residual impact on judgments than a strong claim.

To examine this prediction, Schul and Goren (1997) manipulated the persuasive impact of invalid messages. The cover story involved a trial about a car

accident. Participants were given several testimonies about the case, one of which was provided by a young witness. After being exposed to that testimony, respondents in the discounting conditions were informed that they should ignore it when making their judgment. The persuasive potential of the critical testimony was manipulated in three different ways: the confidence of the witness (assuming that high confidence makes a more persuasive testimony), the style of the language used by the witness (assuming that a matter-of-fact description of the accident is more persuasive than a testimony including linguistic phrases that could remind receivers of the witness's age), and the normality of the events described in the critical testimony (assuming that a testimony about a routine action would be less persuasive, and would have less impact than a testimony about an abnormal action).

The general prediction of Schul and Goren (1997) was that participants who used the critical testimony would find the defendant guiltier when the testimony was strong than when it was weak. Yet, because the perception of strength provides a cue for the extent of contamination the testimony can have, correction should be more pronounced in the case of a strong testimony. As a result, even though the strong testimony should be more persuasive, it should also lead to a more successful discounting performance. This was indeed the case.

This phenomenon might explain the difference in people's success in discounting positive and negative testimonies that were found to be invalid. Hatvany and Strack (1980), Thompson, Fong, and Rosenhan (1981), and Wyer and Budesheim (1987) observed that judges ignore negative messages successfully but fail to ignore positive messages. Because receivers may presume negative messages have a greater potential to influence them, they make greater

correction efforts when discounting a negative message than when discounting a positive one. Conceptually similar explanations may account for the relative success with which individuals ignore forced confessions when they are elicited by punishment, but the reluctance to ignore such confessions when they are elicited by a promise of reward (Kassin & Wrightsman, 1981). Promises of reward may thus be considered a weaker incentive to confess than threats of punishment. It follows that confessions obtained by promises are more likely to be true, and therefore they evoke less motivation to correct for their impact on judgment than do confessions obtained by threats.

The moderating role of integrative encoding

At first glance, the role of integrative encoding is straightforward. Discounting appears to be more successful if, at the time of encoding, receivers are prevented from elaborating on and integrating the valid and invalid messages than when they are not prevented from doing so (Fleming & Arrowood, 1979; Schul & Burnstein, 1985). Conversely, discounting is less successful when receivers are induced to encode the two kinds of messages integratively (e.g., Anderson, Lepper, & Ross, 1980; Schul & Manzury, 1990; Schul & Mazursky, 1990). Additional support for the notion that integrative encoding tends to hinder successful discounting has been obtained by Wyer and Budesheim (1987). These authors show that discounting is facilitated when the to-be-used and to-be-ignored messages refer to unrelated issues, and it is impaired when they refer to the same issue. In the latter case it is likely that receivers integrate the information even without being instructed to do so explicitly.

Recently, however, we have shown that the role of integrative encoding is more complex than past research has suggested (Schul & Mayo, 1999). In this

study we explored what happens when a single source provides two messages, only one of which is valid. It is suggested that in such a case integrative encoding is not necessarily associated with greater failure in discounting. Rather, integrative encoding can either facilitate or impair discounting, depending on the relationship between the valid and the invalid messages. This research is described here in some detail because it sheds light on the cognitive operations involved in coping with invalidity.

Schul and Mayo (1999) analyzed discounting from two opposite perspectives: using the valid (unchallenged) messages, and disregarding the invalid (challenged) messages. These perspectives are important because, as noted above, discounting requires receivers to engage in two simultaneous operations: to suppress or block the influence of the invalid messages, and, at the same time, to utilize the full persuasive potential of the valid messages. We suggested that correction techniques could be used to offset the contamination by the invalid information. However, as the discussion below suggests, when the different messages are associatively linked, that is, when they are integrated, attempts to perform one operation may interfere with the other. In particular, attempts at correction might lead to appropriate discounting, too much discounting (over-correction), or too little discounting (under-correction), even if the impact of the contamination, that is, that of the invalid message by itself, is accurately gauged.

Consider first how using a valid message could impair the suppression of the impact of the invalid message. By definition, in order to ignore an invalid message, one needs to block all its implications. When a valid message is associatively linked with the invalid message, thinking about the former may interfere with one's ability to block the latter. This occurs because the

contemplation of the valid message leads to activation and utilization of inferences that are associated with the invalid message since the two have been integrated. As an illustration, imagine that Jim is applying for the position of copywriter at an advertising agency. The members of the selection committee are considering two reference letters about Jim. One indicates that he is lazy, while the other states that he is overly competitive. Assume that the letters are integrated, that is, that they are interpreted jointly so that their meanings become interdependent. In this example “lazy” and “overly competitive” may be associated with an image of a person who will do anything to climb the professional ladder, yet, because he is lazy, will resort to unethical means. Imagine that at a later time the committee members find out that the message about the applicant’s competitiveness is unreliable and should therefore be ignored. At this point they have to use the valid message about his laziness uncontaminated by the implications of the invalid message about his competitiveness. However, since the two messages have been integrated, the unfavorable implications of competitiveness (the invalid information) are added to the implications of laziness (the valid information). This should lead to a more unfavorable evaluation of the candidate compared with a condition in which only the message about laziness was provided.

Consider now the other perspective, namely, the attempt to suppress the impact of the invalid information. Our analysis suggests that such suppression may lead receivers to under-use the valid recommendation. Specifically, since the valid and the invalid recommendations are highly associated, when one suppresses the invalid information one tends to suppress the valid information as well. In the example given above, blocking the impact of “overly competitive” (the invalid message) can result in blocking some of the implications of “lazy” (the valid

message). When the valid message is unfavorable, blocking its implications leads to a more favorable evaluation of the candidate. This might be interpreted as over-correction.

This analysis suggests that manipulations that increase the density of integrative encoding, that is, facilitate the formation of associative links between the different messages, can either facilitate discounting (to a point of over-correction) or interfere with it. In Schul and Mayo (1999) the density of associative network between the valid and invalid messages was manipulated by attributing them either to a single source or to two different sources. When the messages come from the same source they are more likely to be cognitively integrated (McConnell, Sherman, & Hamilton,1997; Wyer, Bodenhausen, & Srull, 1984). Comparing judgments from the single-source condition with those from the different-sources condition can tell whether the impact of using the valid message on blocking the invalid message is greater than, equal to, or less than the impact of suppressing the invalid message on using the valid information.

Schul and Mayo (1999, Experiment 2) examined a case in which the valid and the invalid messages indicated different negative qualities. When these messages were attributed to different sources, respondents discounted the invalid message appropriately. However, when messages were attributed to a single source, respondents under-used the valid message. In other words, their judgments were overly positive, as compared to judgments of individuals who received only valid information.

What are the implications of these lines of research? Consider, for example, a situation in which two individuals, Tom and Tina, are engaged in a conversation. Tom wants to present himself in a favorable way, as he wants to impress Tina. So

he exaggerates a little and lies a little (see Feldman et al., 2002). Yet, not everything that Tom says is false. In fact, the majority of his statements are accurate. Imagine that at a later point in time, Tina finds out that a particular statement made by Tom was false. Can she discount this particular statement properly? The findings presented above offer a theoretically-challenging yet empirically-complex view about her success. In contrast to the early research that appeared to show that Tina would be unable to discount the false statement, recent research points to conditions that might help or impede successful discounting. That is, there is a shift in the theoretical emphasis from questions about existence ("Is there an interesting phenomenon?"), to questions about incidence ("When does the phenomenon occur?") and, perhaps more interestingly, about understanding ("What are the mechanisms that give rise to it?"). Greater insight into these mechanisms may allow us to devise ways that facilitate coping with invalid messages. The next section is a first step in this direction, as it discusses how past experience of coping with invalidity influences the success of future coping with invalidity.

Preparing to cope with invalid messages

The early research on belief perseverance appears to show that people fail to ignore invalid information even when they know it is invalid. As a result, beliefs persist even after their original evidential bases have been completely falsified. Ross, Lepper, and Hubbard (1975), for example, gave students false feedback indicating that they had failed (or succeeded) on an experimental task. Later, these respondents were thoroughly debriefed about the fictitious nature of the feedback. Still, even though they had learned that the feedback was invalid, the respondents persisted in their erroneous beliefs about themselves (see also Fleming &

Arrowood, 1979; Ross, Lepper, Strack, & Steinmetz, 1977). This finding has been generalized to situations that do not involve judgments about the self or, for that matter, about any specific individual (Anderson, Lepper, & Ross, 1980; Anderson, New, & Speer, 1985; Schul & Burnstein, 1985; Wyer & Budesheim, 1987).

A different picture emerges, however, from the research exploring discounting in situations known to involve deception, and in particular, from research about judgments of mock jurors. It is often found that judgments of guilt or verdicts of respondents who are instructed to disregard invalid target testimony are not significantly different from judgments of control respondents who have not received the target testimony at all (Elliott et al., 1988; Hatvany & Strack, 1980; Weinberg & Baron, 1982; but see Loftus, 1974, for failures to discount), suggesting that people can ignore invalid evidence in making judgments.

As hinted above, one potential difference between belief perseverance and the court paradigms has to do with the a priori expectations individuals have regarding the validity of the information. In the typical belief perseverance study respondents receive information that pertains to a rather unfamiliar domain (e.g., their ability to detect suicide notes) from a highly credible source (i.e., the experimenter). Consequently, they have very little reason to suspect that the information might be inaccurate or invalid. Jurors, in contrast, are well aware that some witnesses may be lying and that testimonies are sometimes invalid. This is highlighted by the procedure of witness cross-examination. Thus, the court setting generally embodies an implicit warning as well as reminders about the potential for deception, while the belief perseverance situation generally does not. The relative success of discounting in a court situation may reflect this difference.

Several lines of research have tested this suggestion. Schul and Manzury (1990) examined the success of discounting in simulated court settings. In line with the findings of other research about discounting in a court setting, Schul and Manzury found that respondents discounted the to-be-ignored testimony successfully when making judgments about the defendant's guilt. Importantly, however, respondents made two additional types of judgments, one about the defendant's aggressiveness and another about the defendant's likability. Unlike its impact on the judgments of guilt, the to-be-ignored testimony did influence the judgments of aggressiveness and likability. We believe that this phenomenon occurred because court settings activate a schema that leads people to deliberately correct for potential biases regarding the relevant guilt judgments. Since other judgments are less central within the court schema, they are not actively monitored and consequently they are more susceptible to the effects of a to-be-ignored testimony (cf., Strack et al., 1993).

Schul and Manzury's (1990) experiment highlights one general mechanism that allows receivers to fare better when coping with invalid messages. When individuals are put on a non-specific alert to the potential bias of invalid information, they are more successful in discounting such information once they discover the specific falsehood. The warning, or the increase in alertness, may be triggered by the properties of one of the messages (e.g., Schul, 1993; Schul & Goren, 1997) and/or by the individuals' experience in similar situations (Schul & Manzury, 1990).

A second general mechanism for coping with invalidity operates at the encoding stage. I have already discussed the hindrance for successful discounting that integrative encoding creates, especially in cases in which the invalid and valid messages have different implications. Let us return to the interaction between Tom

and Tina. Assume that Tina has read Schul and Mayo's (1999) paper before revising her impression of Tom and is thus aware of the difficulties that integrative encoding can induce. In order to prepare for undoing the impact of the invalid information, she can employ one of the following two strategies. On the one hand, Tina may reduce processing complexity so that the invalid messages (but also the valid ones) receive only minimal attention and elaboration, and hence are represented in a rather unintegrated fashion. Accordingly, she may try to encode the information about Tom in a discrete fashion, attempting to remember what Tom said without forming an overall impression (Bless, Hamilton & Mackie, 1993; Hartwick, 1979; Schul & Burnstein, 1985). According to this line of reasoning, a reduction in elaborative processing would allow receivers to minimize or even undo the impact of bad information completely once they find out that the information is indeed bad. However, this strategy is very difficult to implement, as it is virtually impossible to inhibit the tendency to categorize the interacting partner evaluatively.

Alternatively, Tina can prepare to cope with invalid information by increasing rather than decreasing the complexity of processing. Kruglanski's Lay Epistemic Theory suggests that when people suspect that a belief is invalid, they delay the 'freezing' of this belief and continue to look for other alternatives (Kruglanski, 1989; Kruglanski & Freund, 1983). As the cost of a mistake increases, people seek more relevant information and examine it more carefully (Kruglanski & Mayseless, 1987; Kruglanski, Peri & Zakai, 1991). Our own research (Schul, 1993; Schul, Burnstein, & Bardi, 1996) supports the hypothesis that preparatory activity leads to additional processing of the message information. Specifically, when respondents had to read several messages about the same person, those who were made suspicious about the validity of one of the messages needed more time to read the messages and

integrate them than those who were not made suspicious. This phenomenon occurred even though the importance of accurate judgment was equally stressed to suspicious as well as unsuspicious respondents, so that they did not differ with respect to the cost of mistakes.

At first glance, increasing the complexity of encoding may seem counter-productive for coping with invalidity and for inducing successful discounting. However, note that the increase in the complexity of encoding is not done around a single focus. Rather than thinking about Tom along a single dimension, Tina may attempt to think about Tom in multiple ways, as if his statements are true and, simultaneously, as if what he says is false. Schul, Burnstein, and Bardi (1996), as well as Fein and coworkers (Fein, Hilton, & Miller, 1990; Fein, McCloskey, & Tomlinson, 1997; Hilton, Fein, & Miller, 1993) suggest that when individuals interpret information in several different ways, thus creating multiple counter-scenarios, they are better able to discount invalid information. Fein's research shows, for example, that people who discover a possible hidden motivation that may account for the protagonist's behavior engage in more complex encoding than those who do not suspect a hidden motive. Specifically, suspicious respondents behave as if they are examining the protagonist's behavior in two scenarios: one consistent with the explicit motive given in the story and the other consistent with the hidden motive.

In the Tom and Tina example it seems that Tina may find it difficult to prepare to process invalid information by decreasing the complexity with which she processes the information about Tom. Naturally, this raises a question about the conditions in which such strategy can be useful. Below we consider some of the

factors that can influence the amount and nature of the processing of message information.

The typical paradigm for studying the processing of invalid messages attempts to make receivers focus on the message information. Receivers usually get information about a single protagonist, and they are either forewarned that some of the information relevant to the protagonist may be invalid, or they are led to discover the potential for invalidity while processing the information. In either case, they do not have any clear diagnostic information that allows them to separate the true messages from the false ones. The discussion of deception detection presented above points out several characteristics of this situation that may lead to an increase in processing complexity.

First, few processing demands are posed on one's capacity by other tasks. Thus, individuals can devote all their mental resources to attempting to find out those cues that may allow them to detect deception. It is speculated that as demands from concurrent tasks increase, individuals shift their processing away from tasks that involve uncertainty. This strategy is particularly likely when the other tasks are not seen as primary and when mistakes are not costly.

Second, the cues for invalidity in the typical suspicion paradigm are either non-existent or only probabilistic (e.g., the protagonist may have ulterior motives for performing an action, but he or she may also perform it because of intrinsic motivation). Consequently, receivers tend to encode the message information in counter-scenarios. However, as cues become more diagnostic of invalidity, receivers' tendency to elaborate on the invalid information may decrease.

Third, it is functional to elaborate on information if one anticipates using it later. Such a strategy, however, becomes less useful as the amount of potentially

invalid information increases. For example, participants in Schul, Burnstein, and Bardi's (1996) experiments were informed that just one of the eight messages about each protagonist might be invalid, hence most of the messages were valid. Imagine, however, that the number of potentially invalid messages increases to the point that the majority of messages are invalid. My conjecture is that extensive elaboration and re-interpretation within multiple counter-scenarios are counterproductive when the number of potentially invalid messages is high.

It is interesting to note that Wegner's (1994) model of mental control makes similar predictions about the impact of cognitive load on discounting when one knows which message is false. According to Wegner, it is easy to monitor and suppress the impact of an invalid message since upon detecting the invalid message the perceiver can minimize its influence by counter-arguing. Importantly, however, the actual consequences of counter-argumentation depend on the cognitive load: under high-load condition, the more perceivers attempt to avoid being misled by the invalid message, the less likely it is that they will be able to discount it. Note, however, that this cannot happen when perceivers are do not know whether a message is valid or invalid. In such a case, perceivers cannot monitor whether they are being misled upon encoding a message. The monitoring process, therefore, cannot moderate the effect of cognitive load on discounting. Nevertheless, cognitive load is likely to reduce the extent of elaborative encoding and consequently decrease the likelihood that the person will be capable of generating counter-scenarios. If so, this should result in a weakening of the resistance to invalid information that is usually afforded by processing under suspicion.

Finally, the increase or decrease in the complexity of processing may reflect the receiver's response to the realization that his or her habitual mode of processing leads him/her astray. That is, receivers' recent experience with relevant episodes involving coping with invalidity may influence how they process new messages. To study this influence, Mazursky and Schul (2000) exposed respondents to information about six attributes of cars (Experiment 1) or computers (Experiment 2). Shortly afterwards, the respondents found out that the message about one of the attributes was invalid and should be ignored. They then made a series of judgments about the quality of the products. At a later point in the experiment, respondents were given information about different cars (or computers). This information was attributed either to the same source of information as in the first phase or to a new, highly-credible source. During this phase no attribute was discounted and respondents were supposed to use all attributes in evaluating the new products. Thus, following the first phase of the study, half of the respondents experienced coping with false information and half of the respondents experienced using valid information. The question of interest is whether people's experience in the first part of the experiment influences how they process information in the second part of the experiment. In particular, we explored whether respondents increased or decreased the complexity of their processing in the second phase.

The study used three different markers to indicate complexity of processing. First, complex processors should be more sensitive than simplified processors to the attribute information. Because the cars were constructed to have different attributes and consequently different overall degree of desirability, it was expected that respondents using a complex processing strategy would distinguish between

the cars more clearly than those using a simplified processing strategy. A second indicator of complexity of processing is judgment latency. Complex processing is more laborious than simplified processing, and should therefore take more time. Third, participants may simplify processing by using a heuristic cue for evaluating the cars (Chen & Chaiken, 1999; Petty and Wegener, 1999). Specifically, participants were exposed to product information attributed to one of two sources, either the same source that was used in the first phase, or a source considered by the respondent population to be a highly credible person. Therefore, when participants engage in simplified processing and rely on a given source in evaluating products, the difference between the two sources should be pronounced. Under these conditions, evaluations based on information conveyed by a superior (highly credible) source ought to be more favorable than evaluations based on information conveyed by the source from the first phase. Conversely, when processing is complex, difference as a function of the two sources in evaluations of the cars should be attenuated, because under complex processing the evaluations are based mainly on the qualities of the cars.

Mazursky and Schul (2000) explored which of the following three tendencies characterizes our respondents' judgments after they encountered an untrustworthy source of information(1) Increased complexity of processing for everyone; (2) Decreased complexity of processing for everyone; and (3) Decreased complexity for those who are complex processors in the product domain and increased complexity for those who use habitually simplified processing in the product domain. The latter tendency necessitate a priori classification of the respondents as complex or simplified processors. In Experiment 1 individuals were classified as habitually simplified versus complex processors, according to their status of car

ownership. We predicted (and found) that car owners will have more complex processing strategies regarding cars than non-owners. In Experiment 2 whether a person used habitually simplified versus complex processing strategies was determined according to participants' involvement with the product. It was predicted that those who were highly involved with computers would show more complex processing regarding computers than those who were not involved.

Figures 1-3 present the results of Experiment 1. It is important to compare phase2-judgments of those who have not undergone an experience of invalidation in the first phase (the no-invalidation-baseline-condition) with those who experienced invalidation in the first phase. As the figures show, the experience of invalidation had different consequences for car-owners and non-owners. Relative to the baseline condition, owners who had experienced invalidation in the first phase of the experiment shifted to more simplified processing, as indicated by a marked decrease in their differentiation among the cars, a decrease in the time they took to produce the judgments, and an increase in their reliance on the trustworthiness of the source of information. Non-owners, on the other hand, shifted in the opposite direction. Relative to the baseline respondents (who did not experience invalidation during the first phase of the experiment), non-owners who experienced invalidation in the first phase employed more a complex processing strategy in the second phase. This is indicated by an increase in their differentiation among cars, an increase in the time needed to make the judgments, and a decrease in their reliance on the source of information. A second experiment replicated this complex pattern of results, using a different product class (computers) and a different construct to define habitually complex and habitually simplified processors.

Mazursky and Schul's (2000) results suggest that individuals learn from their invalidation experience and systematically change their habitual mode of processing. Those who tend to be complex processors in the particular domain of judgment shift to a more simplified processing, while those who tend to process information in a simplified way, shift to more complex processing. I believe that these shifts occur through the following mechanisms.

To begin with, having encountered an untrustworthy source of information highlights weaknesses in the process of attitude formation or in the judgment procedure. For people who tend to focus on message information in making judgments about the product (complex processors), the experience highlights the importance of the source's trustworthiness, thus increasing the impact of information about the source. On the other hand, for those who habitually use the source as a primary cue for evaluating products (simplified processors), the experience highlights the problems associated with relying on a simple heuristic cue. Therefore, these individuals shift to a greater reliance on message itself.

The choice of processing strategy may also reflect the correspondence between the amount of cognitive resources required by the task and the processing strategy that receivers employ for the task. Receivers who use complex processing (and therefore have little processing capacity to spare) tend to resort to simpler processing strategies following message invalidation. In contrast, receivers who use simple processing when not exposed to message invalidation (and therefore have a great deal of processing capacity to spare) can use a more complex strategy following message invalidation that may increase their chances of detecting false messages.

Finally, the change in people's processing strategy may reflect their motivations. Habitually complex processors (in the particular domain of judgments) may start out with high motivation, coupled with high confidence in their ability to form judgments successfully. Finding out that a message was invalid can therefore produce frustration, resulting in a shift to a more simplified processing strategy. In contrast, those who are less invested in the domain of judgments (non-owners, or people less interested in the products used in the study) have lower motivation to perform accurately. They are more likely to use the least number of cues allowing them to satisfy the requirements of the task. Finding out that a message was invalid may make the task more challenging. This may result in an increase in processing complexity. Clearly, these alternative mechanisms are not mutually exclusive.

It should be noted that each of the two processing strategies by itself might be costly. Consider, for example, what might happen to consumers who are exposed to deceptive marketing practices, such as being shown false information about products or services, being given misleading or incomplete information, or having been subjected to deceptive pricing policies (see examples in Tellis, 1998). Simplifiers may decide to reduce processing effort, to limit and control the potential bias of the message information. Such a strategy, however, is likely to lead them to ignore useful product information, impairing the optimality of their purchasing decisions. Others may attempt to cope with practices of deceptive marketing by increasing their processing complexity. This, however, may spill over to other social exchanges, which may not involve deception. At the extreme, such individuals might mistrust any transaction or information exchange, thus limiting their ability to enjoy many (or most) social interactions which are based on trust. I

believe, therefore, that only a well-balanced mixture of the two coping strategies allows one proper functioning in reality that contains many truthful communications and a few deceptive ones.

Summary and Speculation

We have discussed evidence consistent with the following claims about individuals' success in detecting and handling invalid messages: (1) people are relatively poor detectors of deception; (2) increased familiarity with the source of information does not improve success in detecting deception and may actually diminish it; (3) once a message is found invalid, and receivers are asked to ignore it, the nature of the request matters, with requests based on substantive grounds resulting in more successful discounting than requests based on procedural considerations; (4) messages that elicit a perception of high contamination are discounted to a greater extent than those evoking a perception of low contamination; (5) integrative encoding can lead to judgments that appear as either under-correction, appropriate, or over-correction, depending on the relationship between the to-be-ignored and the to-be-used messages; (6) individuals can prepare for coping with invalid messages by increasing the degree of elaborateness of message processing, thus encoding the messages with the use of different counter-scenarios; (7) people also prepare for invalid messages by using simplified processing, relying to a greater extent on heuristic cues.

The central thread in the story we have told is the oscillation between the two poles of processing complexity. People can cope with invalid messages by increasing or decreasing processing complexity. The distinction between complex and simplified processing is not new. It appears in several different models of

social psychological phenomena, describing person perception (Brewer & Harasty Feinstein, 1999; Fiske, Lin, & Neuberg, 1999), stereotyping (Bodenhausen, Macrae, & Sherman, 1999), as well as attitude formation and change (Chen & Chaiken, 1999; Petty & Wegener, 1999). At an even more general level, the two poles could be linked to the recent suggestion that there are two distinct modes of information processing: experiential and rational (Epstein, 1994; Lieberman, 2000; Nisbett, Peng, Choi, & Norenzayan, 2001; Sloman, 1996; Smith & DeCoster, 2000).

There are many interesting differences between the experiential and the rational systems (Epstein & Pacini, 1999; Smith & DeCoster, 2000). I would like to stress one characteristic that is particularly important in the context of social judgments. The experiential system tends to operate according to well-rehearsed patterns. The rational system, in contrast, allows individuals to deal with abstractions and to make a cogitated response rather than an automatic one.

Schul and Mayo (in press) speculate that in dealing with uncertainty, one tends to use the experiential mode of thinking (Epstein & Pacini, 1999). This is particularly likely when individuals attribute uncertainty to deception (rather than to chance). I believe that, paradoxically, the greater likelihood of using the experiential mode of thinking in detecting deception stems from the receivers' attempts to understand how the sender of information operates, as well as from their attempts to use the suspect message in the specific context. Put differently, in such cases people try not only to deal with immediate uncertainty, but also to gain deeper insight into the deception strategies of the sender. However, although such attempts allow people to be responsive to minute details and sensitive to the configuration of informational cues, they prevent them from thinking about events in

an abstract way. Decision makers are often not cognizant of the possibility that minute details can reflect error variance and that using them might lead them astray (Einhorn, 1986).

Only when one's trust in the experiential system is shaken will one be willing to give up this habitual mode of processing for a less involving, and perhaps less committing, option. It seems that such a choice is possible when the cost of error is low. Thus, it is speculated that, perhaps paradoxically, when people attribute uncertainty to deception by others and when mistakes are very costly, people are likely to persist in using the experiential system, resisting the pressure to switch to rational processing. When there are no diagnostic cues for detecting invalid messages, such a strategy may not be very harmful. However, when there are diagnostic cues that allow the detection of invalid messages with probabilities above chance, using the experiential system is likely to diminish successful coping with invalid messages.

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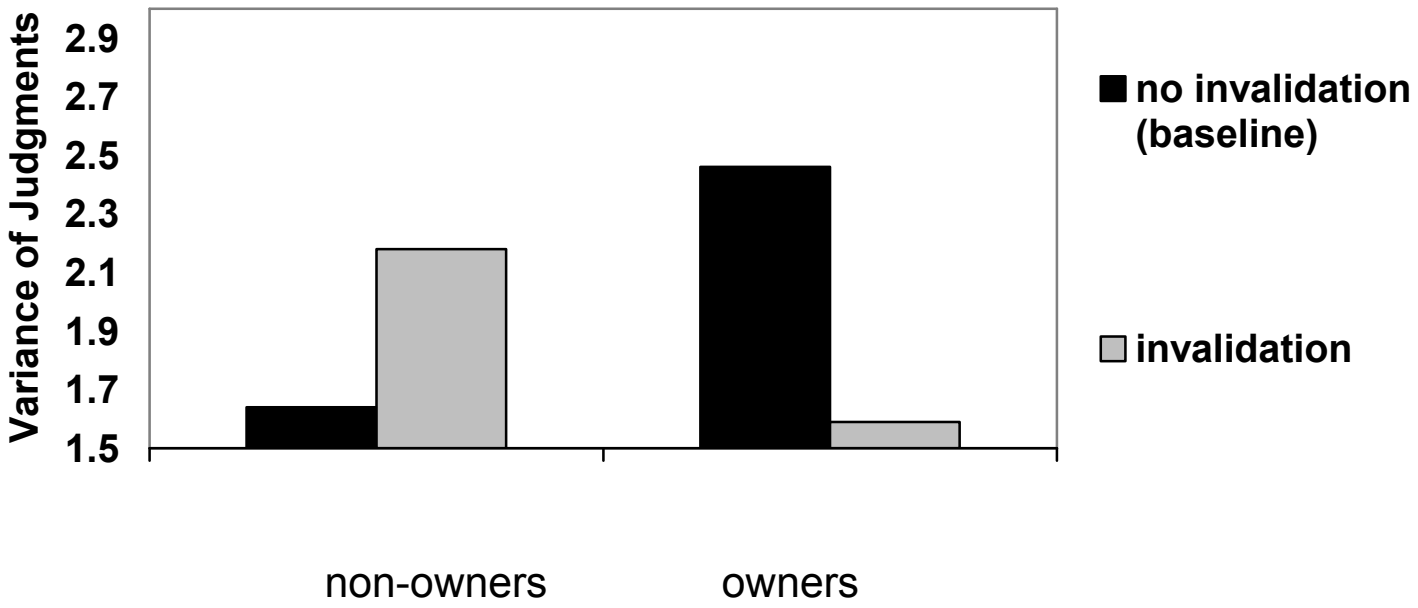
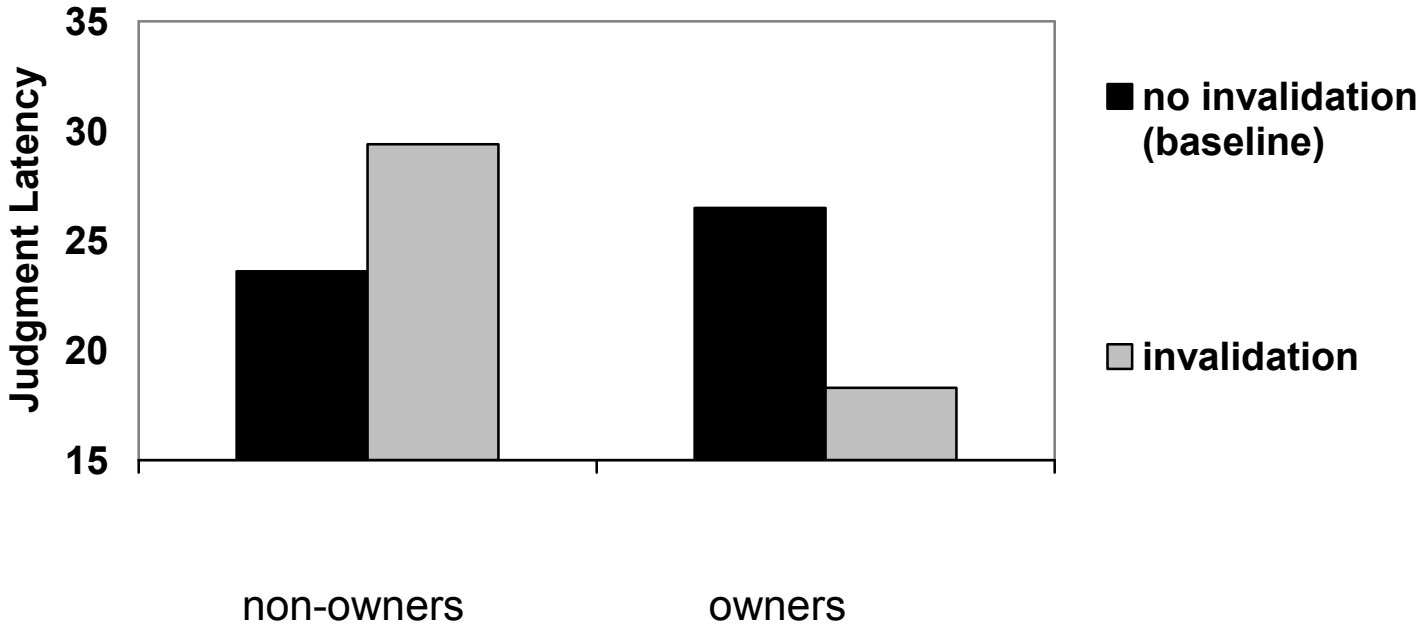
Figure 1: Differentiation among phase2 cars as indicated by variance of quality-of-car judgments (based on Mazursky and Schul, 2000, Experiment 1)



Note: Simplified processing is indicated by small differentiation among cars with different attributes whereas complex processing is indicated by large differentiation.

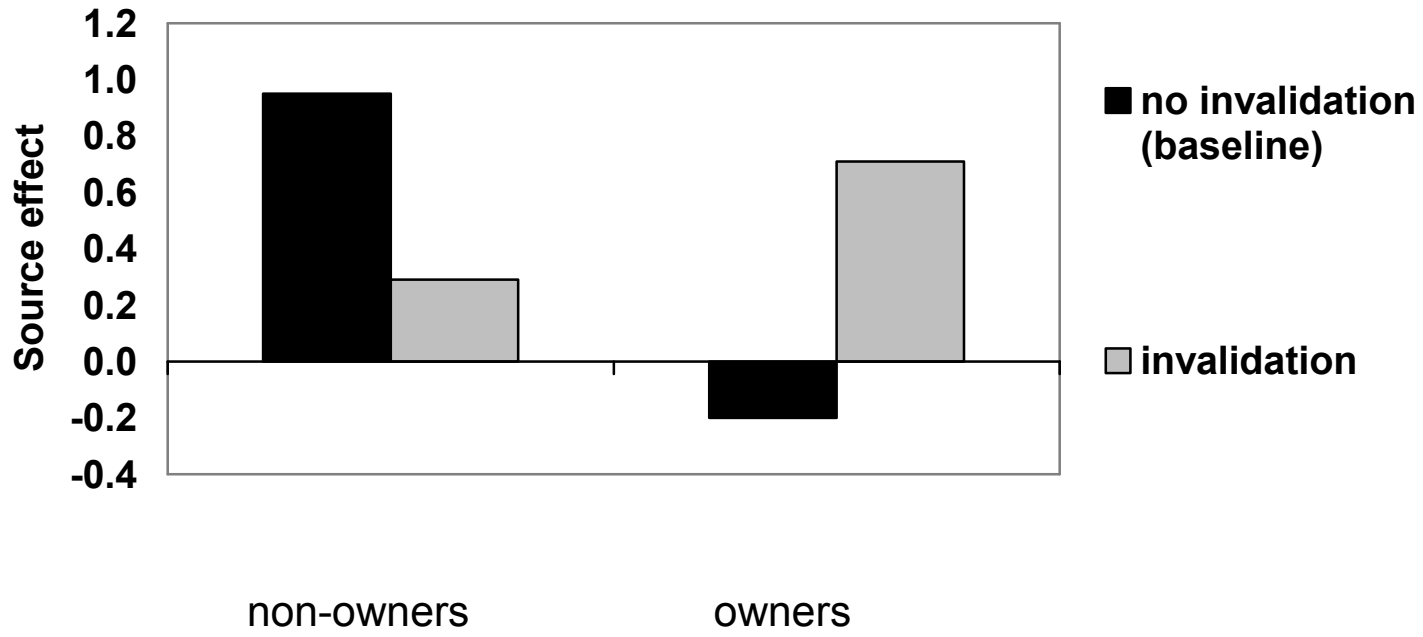
Figure 2: Latency of judgments concerning phase2 cars

(based on Mazursky and Schul, 2000, Experiment 1)



Note: Simplified processing is indicated by fast judgments whereas complex processing is indicated by slow judgments

Figure 3: Source effects (high credibility vs. low credibility) in judgments concerning phase2 cars (based on Mazursky and Schul, 2000, Experiment 1)



Note: Simplified processing is indicated by judgments which are heavily influenced by credibility of PHASE2 source whereas complex processing is indicated by judgments that are not influenced by credibility