Misleading in social decision-making : a motivational approach
Steinel, W.

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Research into lying and deception has used a variety of research paradigms. Techniques as different as scenarios, ultimatum bargaining games, or face-to-face negotiations have been applied to investigate the antecedents, the motives behind, and the consequences of deception. In the following, I will describe some of the paradigms which have been used to investigate lying and deception in empirical research. I will illustrate each paradigm with an example of a study in which that particular paradigm was used, and will discuss its strengths and weaknesses. I will then describe the "Information Provision Game." The Information Provision Game is the research paradigm that I have developed and used in most of the experiments. It combines the important strengths of the aforementioned paradigms, but is without some of their crucial limitations.

Observing or Assessing Real-Life Interactions

Intuitively, one could argue that the best way to find out when, how, and why people lie, is to observe them, keep track of when and how they lie and ask them why they did it. Unfortunately, things are not that simple. Even if an omniscient researcher would be able to systematically observe a large and representative sample of people twenty-four hours a day, and would manage to do that without being noticed by her subjects, she would still not know whether the behavior she has observed really is the construct that interested her. As we know from the extensive literature on lie-detection (see Chapter 1), there are no thoroughly reliable technical means or theoretically sound guidelines to help one spot lying and deception, so we have to dismiss our hypothetical omniscient researcher who could determine from
mere observation whether someone is lying or not as wishful thinking for the time being.

Despite this problem, there are some studies on lying behavior in real-life settings. Vrij and Mann (2001) investigated lying behavior and the detectability of lies in high-stake situations. They analyzed videotapes of police interviews with a suspect who was accused of murder. The suspect kept denying that he had committed the crime throughout the entire police investigation, but was later convicted on the basis of solid evidence, and finally confessed. From videotapes of the police interrogation, the authors selected fragments in which the suspect either lied or told the truth. This original material of lying and truth-telling in a high-stake situation was then used to test the accuracy with which police officers could discriminate between truth-telling and lying. Owing to the use of original material which was analyzed for cues to deception, Vrij and Mann's (2001) approach has proven be successful in validating experimental findings in high-stake situations which cannot be created in a laboratory setting. However, a murderer lying during police investigation is certainly a very special case of lying. By interpreting observations arising out of such cases, therefore, we could not possibly gain much insight into the question of when, how, and why "common people" engage in lying and deception.

When collecting observational data on the prevalence of lying in everyday life, researchers face the problem that they have to determine whether an observed everyday interaction contains lying. One way to avoid this problem is to rely on people's self-report about when and why they lied. Lying and deception are not directly observable constructs, therefore the quality of a researcher's observational data is limited by his or her ability as a lie detector. However, as lying is an intentional behavior (see Chapter 1), liars themselves could collect data on their own lying behavior. Self-reports can be gathered in various ways, such as in open, structured, or semi-structured interviews (e.g., Pugh-Lilly, Neville, & Poulin, 2001), in survey research (e.g., Backbier & Sieswerda, 1997; Metts, 1989), or by making people keep track of and post-hoc analyze their own behavior (e.g., DePaulo, Kashy, Kirkendol, Wyer, & Epstein, 1996; Turner, Edgley, & Olmstead, 1975).

Diary studies are widely used in areas as different as social psychology, work and organizational psychology, health psychology, and developmental psychology
(e.g., Carney, Armeli, Tennen, Affleck, & O'Neil, 2000; Conner, Fitter, & Fletcher, 1999; Donahue, 1993; Reis & Wheeler, 1991; Sonnentag, 2001; Wheeler & Reis, 1991; see also Reis & Gable, 2000; and Visser, Krosnick, & Lavrakas, 2000). The largest and most systematic diary study of lying and deception in everyday life to date was conducted by DePaulo et al. (1996; Kashy & DePaulo, 1996). During one week, two samples of participants, one consisting of 77 undergraduate students and the other of 70 community members, recorded all social interactions of ten minutes and longer, and shorter interactions just in case they contained a lying incident. For each interaction, participants indicated various measures, such as date, time, and duration, the number of persons involved, gender of those, a rating of how pleasant and how superficial or meaningful the interaction was, and whether the participant was more influenced by his or her partner, or vice versa. In case that the participant had told a lie during the interaction, he or she briefly described the lie and the reasons why he or she told it (formal polite answers like "fine" on the question "how are you?" were not regarded as lies). Participants further indicated for every lie in how far they had prepared it, how important they considered it not to get caught, how serious they considered the lie, how comfortable or uncomfortable they felt before, while, and after telling the lie, and their impression of the target's reaction to the lie. One week later, participants reported back to the researchers telling them whether their lie had been discovered, and whether they would lie in the same situation again. Additionally, personality measures, like self-esteem, social participation, manipulative behavior, impression management, social self-confidence and sociability, were collected. The data collected in this diary study confirmed the view that lying is not extraordinary, but rather a fact of daily life. Both college students and community members frequently told lies. They reported that they considered most of their lies as being of little importance, and that they neither regretted having lied, nor were afraid of getting caught (see also Chapter 1).

Self-report studies are a useful tool to gather data from a representative sample, even on behaviors which are difficult to observe. An accurately done diary or survey study can elicit insights into the prevalence of certain types of tactical behavior (e.g., lying and deception) in the general population. Self-report studies can further our understanding of lying and deception, and of co-occurring phenomena.

A caveat of diary studies, like of any other self-report measure, is that they are
open to various distortions which systematically influence what participants report. To diminish distortions, DePaulo et al. (1996) took many steps to elicit highly accurate and complete records of their lies. They thoroughly trained their participants in the use of the interaction records and informed them about the importance of accurate records. Anonymity was secured and the amoral approach to lying was made clear to them. Participants also knew that they would receive their reward, even if they would stop prematurely. Nevertheless, one cannot rule out that, for example, participants hesitate to report severe lies because they might feel ashamed of themselves for doing such an outrageous thing. And even if participants are sure about their anonymity and would report all the lies they remember, their report would hardly be objective either. It is possible that shame-evoking lies prevail in the diaries, because they are more easily retrievable from memory, as the liar has been more intensely busy thinking about them. Yet it is also possible that shame-evoking lies are more difficult to remember. Psychoanalytic theory claims that one psychological defense mechanism of the self is repression, the mechanism to exclude unacceptable mental contents from the awareness (Freud, 1935).

Even if participants could report all their lies, one would still wonder whether the motivations and antecedent situations they describe can give one accurate insights into the reasons for and causes of their lying. A single lie is a distinct incident, and if people tell a couple of lies a day, it must be possible that they report all of them accurately, one should think. The situational circumstances around each specific instance of deception, however, are numerous. The person is in a unique state of mind. He or she might experience a number of different emotions, such as anger, happiness, guilt, envy, disappointment, he or she might be bored, excited, frustrated, tense or relaxed, etc. The situation in which the lie was told has many aspects which could have influenced the person to tell the lie, like the time of day, the place, other people around, maybe even the weather. Also, the interaction in which the lie was told has an indefinite number of aspects. The prior experiences of the liar with the target alone can be virtually infinite. Finally, person and situation variables can interact to influence the person's tendency to lie - maybe the fact that somebody is bored with their current task while the weather is fine and they would rather go swimming motivates them to engage in lying. Altogether, a lie could be a distinct incident which people should be able to report correctly in their diary. This
incident, however, occurs in a very rich situation. Even if a participant could report a lie in an unbiased way, distortions may occur in his or her report of the situation and the antecedents of the lie. Participants' self-reports might be biased due to their desire to justify having lied (e.g., they could overstate the situational pressure to lie, or understate how severely the lie affects the target). Another potential source of bias is inherent in the participants' potential failure to remember every detail of the situation around their lie. In that likely case, their reports might rather reflect their implicit hypotheses about lying than their actual behavior and motivations.

Another caveat of most diary studies is that the observations are correlational. Although some self-report studies are designed as experiments, for example by randomizing different versions of the questionnaire among the respondents, causality is difficult to prove in diary studies. Even though the correlations between some personality measures and lying and deception in the diary study by Kashy and DePaulo (1996) seem to suggest that certain personality traits make people more or less apt to lying, the findings of the study cannot be interpreted as proof of the above causality. Theoretically, the causality could be the other way round, that is, people acquire certain personality traits because of their tendency to lie. Kashy and DePaulo, for example, hypothesized that the better the relationship the more that hampers lying. Their data showed that people who report more satisfying same-sex relationships engage in less lying and deception, while no such correlation emerged for different-sex relationship quality and lying. The correlation cannot be interpreted as causal evidence: Either people do not lie towards same-sex individuals with whom they have a satisfying relationship, or they have satisfying same-sex relationships when they refrain from lying. Alternatively, third variables could influence the tendency to lie and personality measures alike, causing the spurious correlation. Maybe personality determines the situations people get involved in, and different situations offer different possibilities or temptations to lie.

Despite the development of various approaches to establishing causal relationships in quasi-experimental settings (see Campbell & Stanley, 1963), the most solid way to show causality rather than co-occurrence is the controlled experiment. In the following, I will discuss some paradigms that can be fittingly used to investigate lying and deception in controlled experimental settings.
Instructing Participants to Lie

In the most recent review of the literature on deception, DePaulo et al. (2003) list the experimental paradigms which have been and are widely used to investigate lying and truth-telling. Frequently, participants were explicitly asked to lie or tell the truth about different personal matters, or about their opinions and beliefs. For example, the participants in a study by DePaulo and Bell (1996) had to select from a number of paintings the ones they liked most and the ones they liked least. Then, they were confronted with a confederate who allegedly was an art student and had painted some of the paintings. Participants were either instructed to be honest, or to be polite when expressing their opinion about these paintings. In other studies, an even more explicit deception induction was applied. Participants were asked questions and were instructed to answer a certain number of questions honestly, and then switch to giving untrue answers (e.g., Burgoon, Buller, White, Afifi, & Buslig, 1999; DePaulo, Lanier, & Davis, 1983).

Several variations of this paradigm exist. Some, for example, involve film sequences or photographs which are shown to participants, who are then asked to either describe truthfully or lie about what they saw (e.g., Vrij, Edward, & Bull, 2001a, 2001b).

Many studies applied a paradigm in which participants were induced to cheat on a test and had to conceal this in the subsequent interview (e.g., Exline, Thibaut, Hickey, & Gumpert, 1970). Similarly, in mock crime paradigms, participants are instructed to "steal" a small amount of money, which they were allowed to keep when they managed to successfully lie about the "crime" in an interview. In card tests, participants receive a number of playing cards and are instructed to lie if asked whether they possess certain cards.

The aforementioned paradigms have in common that people are explicitly instructed to tell the truth or to lie. Therefore, those are useful paradigms to investigate people's behavior while lying, or to assess their success in conveying deceptive messages. However, experiments in which people are instructed to lie do not tell us much about when, how, and why people themselves decide to engage in deceptive behavior. In the following, I will describe what DePaulo et al. (2003) call "naturalistic paradigms," that is, paradigms in which participants are not instructed to lie, but rather choose on their own between truthfulness and dishonest behavior.
Scenario Studies

Using a scenario paradigm, Schweitzer and Croson (1999) investigated whether direct questions keep people from lying. Their participants read four versions of a vignette and had to imagine that they were about to sell their 7-year old car, which had a transmission problem which was not immediately noticeable, but would need to be fixed. Participants had to indicate how likely they would be to mention the transmission problem if a potential buyer, either a friend or a stranger, explicitly asked whether there are any technical problems and how likely they would be to mention it if not asked about it. The authors found that participants lied less to friends than to strangers, and that they lied less when directly asked than when not asked.

A scenario experiment like the one done by Schweitzer and Croson (1999) has a couple of strengths and advantages. First, it is a cost-effective way to collect data. Scenario questionnaires are quite easy to administer to almost any population. Second, a scenario questionnaire offers a high degree of experimental control over the variables which are manipulated. Furthermore, the questionnaire items usually provide good estimates of latent variables such as motivation or intention.

Nevertheless, the scenario study suffers from a methodological shortcoming which is inherent in the experimental paradigm. This unavoidable weakness is that in a scenario study it is only possible to measure intentions rather than behavior. Self-reported behavioral intentions differ from actual behavior in a couple of ways. One reason is bias due to self-presentation. Maybe the participants in the study by Schweitzer and Croson (1999) would in fact lie about the transmission problem when selling a car to a friend, but they would not tell the experimenter that they would do so. This might be the case due to social desirability bias. Alternatively, participants may be ashamed to indicate that they would lie to friend.

Biases due to concern with self-presentation are not the only possible reason why behavioral intention can differ from real behavior. Even when participants indicate as accurately as possible how they think they would behave, this intention can differ from how they might end up behaving in a real situation. Maybe the participants were convinced that they would not lie to their friend about the technical problem when they read the vignette. When they experience the situation for real, however, subjects may act differently, as the reasons why they should
nevertheless lie can be numerous. For example, greed could come into play when they cannot resist the temptation to make some extra money. Alternatively, they may, upon seeing their friend's eyes glisten with delight during the test ride, feel obliged to lie about the technical problem, in order not to spoil the friend's joy about buying the car.

Due to this limitation, the results from scenario studies must be interpreted with caution. Schweitzer and Croson (1999) conducted a follow-up experiment in which they replicated their scenario findings in a role-play negotiation task. When combined with a confirmative experiment applying a different paradigm, the shortcomings of a scenario study do not weight as heavily. Scenario studies can definitely contribute to the external validity of experimental findings by extending them beyond laboratory settings and student populations.

**Interpersonal Bargaining**

One way to study real bargaining behavior rather than intentions is to have participants engage in *role-play interpersonal bargaining*. This paradigm allows researchers, in a highly standardized experimental situation, to explore the influence of various variables on the way people behave in interdependent situations.

In negotiation experiments, participants usually engage in what Schelling (1960) called "explicit bargaining." Explicit bargaining requires that parties have divergent interests, communication and mutual compromise are possible, and parties can exchange provisional offers, which do not set the tangible outcomes until mutually accepted. A negotiation experiment typically involves two people who negotiate an economic exchange. Both parties receive information about the own payoffs of all possible agreements; sometimes they receive information about the other's payoffs as well. By exchanging offers, both parties try to reach an agreement.

The paradigm of role-play negotiations can take various forms to fit the theoretical demands of the study. One characteristic of the task at hand is the number of issues at stake. The negotiation can consist of only one issue (e.g., the price of a used car), or of various issues (e.g., the price of a new car, warranty, equipment, color, delivery date, etc.). In the former case, the negotiation is a completely competitive win-lose task. In the latter case, parties might have different priorities between the issues at stake, which makes the negotiation a problem-
solving task which offers win-win solutions from which both parties gain more than from simple compromise. Another characteristic along which role-play negotiation paradigm can vary is the communication medium. The two parties can negotiate while they sit face-to-face at the bargaining table, or they can interact via a more restricted medium, like the telephone, email, written messages, and so forth. In interpersonal bargaining experiments, participants do not necessarily have to negotiate until they reach an agreement. Some research questions (e.g., research on first impressions or pre-negotiation information processing) do not require the bargaining process to be completed— a few number of rounds, or even only the exchange of opening offers might suffice.

O'Connor and Carnevale (1997) used a two-party face-to-face interpersonal bargaining setting to investigate the use and effect of misrepresentation. Participants were assigned to a negotiating dyad, each member was given the role of either a union or a management representative, and each received a payoff table showing the five employment issues on which they had to reach an agreement. On four of those issues, namely salary, vacation, annual raise and medical coverage, parties had different interests. The management preferred to pay a lower salary, give less vacation, and so forth, while the union preferred a higher salary, more vacation, and so forth. On the fifth issue, starting date, both parties had the same preference, namely, both gained most when agreeing on a late starting date. This common-value issue gave both parties the opportunity to dishonestly claim that they would prefer an early starting date, and ask for a concession on a different issue in order to agree on a late starting date. The participants negotiated until they reached an agreement. The tape-recordings of their communication were transcribed and coded for the occurrence of negotiation behaviors such as the provision of numerical information, the provision of priority information, requests for information, threats, positional commitments, offers, and rejection of offers. Additional codes were given for misrepresentation by commission, that is, when one bargainer misleads the opponent on purpose and states opposed interests with regard to the common-value issue, and for misrepresentation by omission, that is, when a bargainer fails to correct an opponent who has made a faulty assumption. O'Connor and Carnevale found that in about 28% of the dyads, a negotiator applied that "nasty but effective negotiation strategy" (p. 504) of misrepresentation. As they had expected, deception
occurred especially when bargainers were instructed to increase individual rather than collective outcomes, misrepresentation occurred together with other competitive behaviors, and deception increased the individual outcome of the deceiver.

The interpersonal bargaining paradigm is a well suited way to explore under which circumstances people lie to an independent other. Because it is possible to experimentally manipulate those circumstances, interpersonal bargaining experiments allow testing causal relations, and it is possible to observe deceptive behavior rather than intentions.

However, the interpersonal bargaining paradigm has some shortcomings as well. The experimenter or the raters have to determine for each behavior they observe whether that certain behavior represents an instance of lying and deception. The more naturalistic the setting (with face-to-face negotiations probably being the most naturalistic experimental setting), the more communication channels the bargainer can use, and the greater the likelihood that instances of lying and deception might remain unnoticed by the raters, or that raters might perceive a statement as deceptive, while it was neither intended so by the focal negotiator, nor understood as such by the target. A bargainer pretending opposed interests and simultaneously blinking with one eye to mark the statement as a joke and thereby actually revealing information might be an example of a negotiation behavior which raters might erroneously code as a lie.

Furthermore, the free interaction of two (or more) participants reduces the experimental control. Lying and deception could, for example, leak through nonverbal behavior, which influences the bargaining process, but remains unnoticed by the experimenter. Experimental control can be enhanced by having only one experimental participant negotiate with a confederate who follows a script, or, in case of the computer-mediated negotiation, with a pre-programmed computer. The enhanced experimental control comes at the expense of diminished "richness" of the data and maybe less mundane realism of the experiment. I will return to the latter point in the conclusion of this chapter.

The so-called experimental games have been developed as a possibility to translate the crucial aspects of mutual dependence which are present in negotiation into a highly controlled setting. In the following paragraph, I will describe
experimental games as a model of a bargaining situation and will discuss in how far they can be applied to the study of lying and deception.

The Prisoner's Dilemma and Similar Experimental Games

Having two participants engage in explicit bargaining almost necessarily results in lack of experimental control. To address this practical issue, researchers have developed several highly structured experimental paradigms to investigate mixed-motive interaction. The most famous of these two-person, two-choice experimental games is the **Prisoner's Dilemma Game** (henceforth, PDG; see Rapoport & Guyer, 1966). In the PDG, two players (A and B) face the same decision, whether to choose move 1 or move 2. If both players choose move 1, both receive a reward (for example both earn 10 points). If both go for move 2, both get punished (i.e., both receive only 5 points). If the players make different choices, then the player who chooses move 1 receives a more severe punishment than when both choose move 2 (e.g., 0 points), while the player who opts for move 2 receives a higher reward than when both choose move 1 (e.g., 15 points).

The dilemma in this game consists in the following: Choosing an individually favorable move prevents the players from reaching a collectively favorable outcome. For each player, choosing move 2 is a guarantee of higher individual gain than choosing move 1, regardless of the choice of the other player. Choosing move 2 yields 15 points when the other goes for move 1, and 5 points when the other goes for move 2. Choosing move 1 yields 10 points when the other player opts for move 1 too and 0 points when the player who is second to choose goes for move 2. Parties who base their choices on rationality therefore choose move 2 and get locked in mutual defection. Move 1 is also referred to as the "cooperative move" (or move C), because when both players choose move 1 the joint profit is maximized. Analogously, move 2 is also referred to as the "defective move" (or move D), as choosing move 2 increases the own outcome and decreases the other player's outcome, irrespective of the other player's choice. The outcome matrix of a PDG resembles the interdependence structure of many real-life situations, like bargaining, or the information dilemma (see Chapter 1; see Nemeth, 1972, for a critical review of the PDG).

Some studies have investigated what happens when players in a prisoner's
dilemma game lie or tell the truth when they announce that they would adopt a certain strategy (e.g., Benton, Gelber, Kelley, & Liebling, 1969; Bonoma, Tedeschi, & Helm, 1974; Lindskold & Horai, 1974; Monteverde, Paschke, & Tedeschi, 1974). However, these studies do not further our knowledge of when, why and how people mislead an interdependent other, because they focus on the consequences rather than the antecedents of deceit.2

The PDG and related two-person, two-choice experimental games are deficient to study lying and deception for two reasons. First, in a prisoner's dilemma, players can only choose between two (sometimes three) distinct courses of action and they usually have full knowledge of what their action means for their own outcome and the outcome of their opponent. Lying and deception, therefore, when it occurs, is almost necessarily lying about one's intentions. The only lie which "makes sense" in a PDG is to announce a cooperative move (i.e., to say "I'll choose move 1 in the next game" or "Let's both choose move 1"), in order to make the other player choose the cooperative move (i.e., choose move 1 so as to achieve the highest joint gain). The player who has made the mendacious announcement that he or she will go for the cooperative move can then increase his or her own gain by making the competitive move instead.

2 Related to experimental games such as the PDG, game theorists, economists and mathematicians have provided structural analyses of people's behavior alternatives and of expected outcomes. They approached basic questions such as "Under what circumstances is it a rational choice to engage in lying and deception?" in a variety of ways: by developing mathematical models to determine rational choices for actors in interdependent situations, by deducing which interdependence structures or market conditions are most susceptible to deception (Darby & Kani, 1973), by analyzing the influence of reputation in exchange relationships (Lahno, 1995), or the deception possibilities of parties in conflict (Brams, 1977; Brams & Zagare, 1977, 1981; Inohara, Takahashi, & Nakano, 1997) and by designing bargaining procedures which should induce bargainers to be honest in proposing settlements (Brams, 1990; Chatterjee, 1985). Mathematical models, however, cannot explain people's behavior. Rather, they can give prescriptive advice about how likely it is that certain behavior will lead to certain outcomes. As such, mathematical models might be a starting point to derive hypotheses about variables that influence behavior, but they cannot test these hypotheses. The aim of this dissertation, however, is to investigate when, how, and why people deceive interdependent others. Therefore, I will ignore those approaches to lying and deception which are prescriptive rather than descriptive and will focus on research paradigms which allow one to test specific hypotheses in empirical studies.
The second reason why the PDG is deficient to study lying and deception is the fact that deceiving in the PDG is fundamentally different from real-life cheating. In a PDG, the cheater cannot assume that he or she will "get away with it." The deceit in a PDG is immediately revealed as both parties can deduce which move the other party has made from the outcomes they get. This is the opposite of the situation of the "everyday liar," who assumes that his or her lie will not be detected by the target (DePaulo et al., 1996).

The Ultimatum Bargaining Game

The Ultimatum Bargaining Game (henceforth, UBG) is a two-player game. One player, the proposer, suggests the division of a given amount of money (or coins) between himself and the other player. The money to be divided is often called "the pie." The other player, the responder, can either accept or reject the proposed division. When the responder accepts, each player receives their respective portion of the pie as divided by the proposer. When the responder rejects, however, both players receive nothing (see Camerer & Thaler, 1995, for a review on ultimatum bargaining).

The UBG is a very simple bargaining game, for which game theory offers a straightforward prediction about how players (seen as income maximizers) should behave. Responders should accept any offer, because anything is better than nothing. Proposers, therefore, should offer one cent, and keep the greatest share for themselves (Camerer & Thaler, 1995; Roth, 1995). However, people do not behave according to game theoretical predictions. Proposers typically offer shares of 30 to 40 percent, and even fifty-fifty splits are often suggested. Offers of 20 percent are most frequently rejected. Responders seem to prefer getting nothing to accepting a division which yields more profit to the proposers. A frequently investigated explanation for this behavior has been concern with fairness (e.g., Blount, 1995; Croson, 1996; Güth & Tietz, 1990; Pillutla & Murnighan, 1995, 1996).

Pillutla and Murnighan (1995) investigated whether proposers tried to be fair or to appear fair. To this end, they manipulated the responders' knowledge of the size of the pie which was to be divided. Additionally, some offers were given the label "fair," either by the proposer, or by a neutral third party. When proposers could give a label to their own offers, the vast majority of them strategically used their
information advantage and made smaller offers whenever the responder did not know about the size of the pie, while making larger offers when the responder was aware of it. More interestingly, more than 60 percent of the proposers made lower offers when they could add a fairness label than when they could not. This means that when proposers had the chance to (falsely) claim that they acted fair, they in fact made offers which were less fair. Pillutla and Murnighan conclude that the proposers were trying to appear fair, while they actually attempted to maximize their own outcomes. Rather than being truly fair (e.g., proposing equal splits when they label an offer as fair), they used cheap talk – they fraudulently labeled exploitative offers as fair.

Boles, Croson and Murnighan (2000) used the UBG paradigm to further explore the dynamics of deception and retribution. Their participants engaged in several rounds of ultimatum bargaining. Proposers always knew what the size of the pie was, and responders always knew what the size of their outside option was, that is, the amount of money responders would get when they reject the proposer's offer. Whether or not the proposer was aware of the outside option, and whether or not the respondent was aware of the size of the pie was experimentally manipulated. Respondents started the game by sending a message to the proposer. In this free message, responders could make a specific demand, truthfully reveal their outside option, misrepresent the value of their outside option, or make any other statement. The proposer, then, replied with an offer and a message (which could include truthful or deceptive statements about the size of the pie, doubts, threats, apologies, etc.). The responders, finally, rejected or accepted the offer. Boles et al. found that proposers exploited the responders' lack of knowledge, as offers were lower when the responder was not aware of the size of the pie.

More importantly, players, proposers and responders alike, also took advantage of the other party's lack of knowledge by sending deceptive messages only when the opponent was not aware of their private information. To investigate reaction to detected deceit, the private information of some players was revealed after two rounds of ultimatum bargaining. Players who found out that they had been deceived by their counterpart rated the other player as less truthful and trustworthy, and expressed a diminished desire to engage in future interaction. Responders reacted to revealed deception by demanding greater shares and by
rejecting subsequent offers. That is, responders who found out that they had been deceived in earlier rounds rejected many offers, whereas responders who did not know that they had been deceived accepted similar offers.

As the study by Boles et al. (2000) demonstrates, the UBG is a useful paradigm to explore the dynamics of deception and retribution in repeated bargaining. However, some caveats inherent in the standard ultimatum bargaining game limit its appropriateness for the purposes of this dissertation, namely to investigate when, why, and how people use the provision of accurate and inaccurate information to influence a counterpart's decision-making. Firstly, like in the standard interpersonal bargaining experiments, one cannot measure deception directly. One rather has to figure out from the messages parties send whether or not deception has occurred. Therefore, it remains disputable if a party has deceived at all, at least in those cases where deceivers have been careful with their words and have given the deceptive message in an implicit way. Secondly, there is no clear measure of the "magnitude" of the deception, that is, how far does the deceptive statement deviate from what would have been an accurate statement. Finally and most importantly, the UBG does not allow the researcher to study the "direction of deceit," as it was done in the interpersonal bargaining study by O'Connor and Carnevale (1997). To address these issues, I have designed a task that makes it possible to measure both the amount of deception and the direction of deceit. This task, the Information Provision Game, will be described in detail in the next section.

The Information Provision Game

The Information Provision Game is modeled after the Dictator Game. Participants are made to believe that they would interact in pairs, with one player taking a decision which determines both parties outcomes. The decision maker has no information about what his or her decision means for the other party involved. The other player, in turn, plays the role of information provider. The information provider may inform the decision maker about what the latter's decision would mean to them. That is, the information provider can reveal his or her private information to the decision maker. In doing so, the information provider can be honest or deceive. Deceiving means that the information provider does not communicate his or her real preferences, but tries to mislead the decision maker by
stating different preferences. In actual fact, all participants play the role of information provider and could influence the decision of the decision maker by the information they send to him or her. By providing accurate or inaccurate information, participants can make some options appear more or less attractive and thus try to steer the other’s decision.

Participants are seated in cubicles equipped with a computer, a pen and several blank sheets of paper. On their computer screens, participants can read the instructions for playing a decision game. They find out that they are about to be paired with another player, with whom they are going to interact via the computer network. Participants are told that they would never find out with whom they played, and roles (player 1 or player 2) would be determined at random. In fact, each participant is placed in the role of information provider (player 1).

The purpose of the decision game is to determine an outcome concerning two issues, A and B. On both issues, one out of three levels, x, y, or z, has to be chosen. Player 2 (henceforth referred to as decision maker) would determine for both the issues A and B which level (x, y, or z) would be chosen, and, as such, would determine both his or her own outcomes and the outcomes of player 1 (henceforth referred to as information provider). Participants also read that the decision maker would receive information about his or her own payoffs, but would never receive objective information about the information provider’s payoffs. Thus, the decision maker would only have incomplete information. The information provider would receive information about both his or her payoffs and the decision maker’s payoffs (with one exception, see below).

The information provider would start the game by sending a message to the decision maker with information about the outcomes he or she would receive for each of the possible decision options the decision maker could choose from. The decision maker would then be asked to make a decision determining both his or her own outcomes and the information provider’s outcomes. It is emphasized that decisions would result in a number of points, and that points would be converted into lottery tickets. The more points gained, the more lottery tickets one would get and, hence, the greater one’s chance of winning a cash prize.

Participants receive their payoff tables and a detailed explanation. A quiz ensures that the instructions are understood. In their payoff table, they can see that,
on issue A, they could earn 6, 3, or 0 points and on issue B, 2, 1, or 0 points on the
levels z, y, or x, respectively. The decision maker's payoff table is the mirror image of
their own. (In the first experiment, I manipulated the task structure and participants
were shown different payoff tables, see the Method section of Chapter 3). The
information that the participant is "player 1" and the payoff tables of "player 1" and
"player 2" remain visible on the screen (see Appendix A).

It is repeated that the decision maker has no information about the payoffs of
the information provider and would never get objective information. Participants are
told that they could provide information about their own payoffs to the decision
maker, that is, they could show the decision maker how their payoff table looks like.
For this purpose they could fill out an empty payoff table that would be sent to the
decision maker. Participants are also told that they could claim anything they
wanted, that is, they could give as much information as they wanted and are free to
choose between giving accurate and inaccurate information.

Participants are then shown an empty payoff table and, on the same screen, a
row with 25 boxes containing the numbers from -12 to +12, and a box containing a
question mark. Participants are told that for each of the six cells of the payoff table
they could select by mouse-click either a number between -12 and +12, or click on the
box with the question mark when they do not want to give any information about
their points in that cell (see Appendix A). The choice would then appear in the
appropriate cell of the payoff table (see Appendix B). After this choice is made for all
six cells, participants can change their choices as often as they want. Only after they
confirm by clicking the "send" button, would their choices become definite. The
payoff table with the values participants claim they get (in cells xA, yA, zA, xB, yB,
and zB) is then allegedly sent to the decision maker.

The reader can consult Appendices A and B for the computer screen the participants
can see during the game, along with two hypothetical response screens, one filled
out by a participant providing full and accurate information, and one filled out by a
participant providing full but inaccurate information.

The numbers provided in each cell (i.e., the numbers participants claim to be
the values of the cells xA, yA, zA, xB, yB, and zB in their own payoff table) are used
to create two related indices of information provision. All information is classified as
either accurate or inaccurate. Inaccurate means that the number a participant entered
into a cell was higher or lower than their actual payoff in that cell. The amount of accurate information is the number of cells that contain accurate information, and the amount of inaccurate information is the number of cells that contain inaccurate information. Both indices are discrete with a range of 0 to 6, the sum of both indices equals the total amount of information provided. As participants have to enter numbers or question marks into six cells of the payoff table, the number of cells in which they give no information (question marks) equals six minus the amount of accurate information minus the amount of inaccurate information.

The aim of this dissertation is to investigate when, why, and how people influence the decision-making of interdependent others by the provision of accurate or misleading information. As a paradigm to investigate these questions, the Information Provision Game is constructed to combine the strength of the paradigms outlined above and to avoid many of their limitations. First, being an experimental paradigm, the Information Provision Game makes testing causal hypotheses possible. In many of the experiments in Chapters 3 and 4, for example, I have manipulated the expectations about the decision maker's motivational goal. Of course, other structural variables can be manipulated, like the importance of outcomes to both parties (see Experiment 2 in Chapter 3), or the presence or absence of observers (see Chapter 4). As participants are randomly assigned to experimental conditions, observed differences can indisputably be attributed to the experimental manipulation. This is a clear advantage over diary or quasi-experimental studies, which cannot rule out the possibility that the findings are also caused by third variables.

Second, the Information Provision Game is a tight paradigm which offers a high level of experimental control. The interdependence situation in the Information Provision Game is reduced to an abstract setting. Participants have to influence the decision of an anonymous other on two issues, A and B. The abstractness of the social situation minimizes random uncontrollable influences of the social setting. In environmentally richer experiments, like the scenario of selling a used car (Schweitzer & Croson, 1999), participants might act according to certain social norms or according to prior experiences with similar situations. This is hardly the case in the Information Provision Game – in real life, you do not consider whether to choose level x or z on issue A.
So how realistic are experiments based on the Information Provision Game? In my view, the abstractness of the Information Provision Game setting is an advantage rather than a limitation. Aronson and Carlsmith (1968) argued that experiments can be realistic in two senses. One of the senses is the so-called mundane realism. An experiment has mundane realism when the events that occur in the experimental situation are similar to events which occur in "real life." Mundane realism, however, is not a prerequisite for an experiment to be important.

More important than mundane realism is experimental realism. Experimental realism is present when the situation involves the participants and has an impact on them. Having observed the participants during five Information Provision Game experiments, and talked to many of them after that, I do not doubt the experimental realism of the Information Provision Game. Some participants were disappointed when they found out that they were not the ones to take the decision, some were relieved when they received the (false) information that their opponent was a cooperative person. Many participants corrected their messages several times until they "looked good," before definitely sending them. Some were even so proud about how they managed to mislead the other that they were disappointed when they were debriefed and told that they did not really interact with any real person.

To mention two more strong points of the Information Provision Game, not only is it exciting to play, but it also has another major advantage – the main dependent variable observed is a behavior. People do not just indicate whether they would deceive someone if they were in a position to do so, they really do something: They either hold back, or accurately disclose information, or they lie and mislead their opponent.

Finally, the Information Provision Game allows a quantitative as well as a qualitative assessment of deceit. In one of the first social-psychological experiments on lying and deception, Kelley (1966, p. 60) reasoned that for negotiators, "in giving information there are three alternatives: to tell the truth, to lie, or to say nothing." While I will surely not contradict this statement, the Information Provision Game allows assessing more than which of these three alternatives people choose. In contrast to previous research on lying and deception in social decision-making, the Information Provision Game allows one not only to examine the extent to which individuals misrepresent their preferences and priorities, but also the direction in
which they try to mislead their counterpart. Furthermore, the Information Provision Game can reveal some information about the magnitude of a lie, as it is possible to assess how far the inaccurate information that a participant provides deviates from the objective information.

Altogether, the experimental task allowed us to look at the provision of information in close detail, learning about the amount of accurate and inaccurate information provided, and about the direction of deceit. We see this as an important advance over earlier studies on lying and deception, which were only able to code whether lying or deception occurred or not.