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POWER AND CONCESSION IN COMPUTER-MEDIATED NEGOTIATIONS: AN EXAMINATION OF FIRST OFFERS[1]

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Abstract

Negotiation is increasingly being conducted over computer media, such as e-mail and instant messaging, because of the potential for time savings and monetary benefits. However, these media can affect negotiators' behaviors as they engage in what is called concession making, which is a process by which they make offers that yield benefits to their opponents. In this paper, we focus on how and why conducting negotiations via computer media can affect this process, especially when negotiators have unequal power. Our research model is based on theories from the information systems, negotiation, and social psychology literatures. Via a laboratory experiment, we find that concessions made by the first individual to make an offer (the first mover) were not typically reciprocated by his/her negotiating opponent (the second

mover). Thus, in the context of computer-mediated negotiation, it appears that second movers are, among other things, more likely to violate the well-established norm of reciprocity. This can result in significant disadvantages for the first mover, independent of power differences between negotiators. In addition, we find that, contrary to face-to-face negotiations, increased power of one negotiator resulted in his/her having less influence in terms of getting larger concessions from the other negotiator. In general, these findings support the notion that computer-mediated negotiation can be significantly different than face-to-face negotiation.

Keywords: Computer-mediated negotiation, instant messaging (IM), first offers, power, cooperation theory, concession, reciprocity norm

Introduction

Negotiation is a process by which a joint decision is made by two or more parties, who perceive that their interests conflict (Pruitt 1981; Thompson and Hrebec 1996). A recent trend is for negotiations to occur over computer media via e-mail and instant messaging (Dorado et al. 2002; Katsh and Rifkin 2001; Tyler 2004). For example, Harborside Plus facilitates price negotiations between traders, who want to remain anonymous, using instant messaging; more than three billion dollars worth of trades have been handled in this manner (Global Investment Technology 2003). In addition, there is also a new form of auction site (e.g., Fididel.com) that allows buyers and sellers to engage in price negotiations via instant messaging in what is called engagement commerce (Business Wire 2008). The use of computer media for such negotiation can lower the cost of the process, increase its speed, make it

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[1]Alan Dennis was the accepting senior editor for this paper.

more informal, and reduce the need for third parties (Katsh and Rifkin 2001).

However, using computer media for negotiation has challenges. For example, these media can make it more difficult for negotiators to reach agreement (Thompson and Nadler 2002; Valley et al. 1998), which is the primary goal of negotiation (Fisher and Ury 1991; Lax and Sebenius 1986). Agreement is reached by a process of concession making, which occurs when one person makes an offer that supports another person's interests while there is an attendant reduction of benefit to the person making the offer (Pruitt 1981). Computer media can affect concession making in at least two ways. First, concessions are more likely when negotiators are willing to cooperate with each other. But because of the expected ease of encoding and expected difficulties in decoding deceptive messages, negotiators using computer media initially are less willing to cooperate due to their beliefs that opportunistic and unethical behaviors are more likely to occur (DePaulo et al. 1999; Naquin and Paulson 2003). Second, computer mediation can reduce concession making when power differences exist among negotiators due to the depersonalization of negotiators' interactions (Hollingshead 1996). With depersonalization, low power negotiators are more likely to perceive that they are being manipulated by high power negotiators; in response, low power negotiators are more likely to resist by reducing their concession making (Folger and Poole 1984; Lawler and Yoon 1993; Mannix 1993).

To more effectively use computer media for negotiation, we need to have a clearer understanding of the process at the individual level. However, studies have given little attention to this matter. Instead, past research examining the effect of communication media on negotiations have related different media to outcomes, such as likelihood of agreement, (e.g., Carnevale and Isen 1986, Purdy et al. 2000, Valley et al. 1998) and have examined the effects of negotiation support systems on negotiation outcomes (e.g., Dennis et al. 1988; Foroughi et al. 2005; Lim and Benbasat 1993). In contrast, our research question focuses on how and why the use of computer media can alter concession making in negotiations between individuals with unequal power.

The next section describes our research model, its components, our hypotheses, and their theoretical foundations. To this end, we employ extant negotiation theory that has been developed with the explicit or implicit assumption of a face-to-face context. We then offer hypotheses regarding ways that computer-mediated negotiations will significantly differ. This is followed by a description of our research design. Our results and associated discussions, which include implications

for researchers and practitioners, are presented in the final two sections. Many of our implications draw on what would be expected with face-to-face negotiation and compare that to what we found from our focus on computer mediation.

Theory and Research Model ▰▰▰▰▰

The context of our research model is described below in terms of (1) negotiation within a dyadic setting, (2) concession making in terms of first offers, and (3) power. We employ cooperation theory to elaborate on these issues as they exist in face-to-face negotiation. We then describe how our expectations change when a computer medium, such as instant messaging, is employed for negotiation.

Negotiation. Negotiation is a process that involves decision-making in which parties perceive that each other's goals conflict with their own (Thompson and Hrebec 1996), although they must cooperate to reach satisfactory outcomes (Morley and Stephenson 1977). This results in a mixed-motive relationship in which the parties cooperate as well as compete (Putnam and Roloff 1992). For example, in negotiations over a fixed resource, each party competes to claim a larger portion of the resource for himself/herself. However, this competition is tempered by the realization that as one party claims more of the resource, the likelihood of the other party cooperating (i.e., agreeing to the resource distribution) decreases; lack of agreement (or impasse) decreases the potential utility of the negotiation for both parties (Lax and Sebenius 1986; Neale and Bazerman 1985).[2]

Our specific concern is with dyadic (two party) negotiation between individuals that are strangers (i.e., unfamiliar with each other). Such negotiations are typical between buyers and sellers in online environments, such as Harborside Plus, Fididel.com, and Square Trade (Katsh and Wing 2006; Rabinovich-Einy 2006; Tyler 2004).

Concession Making. Concession making occurs when one person's offer supports another person's interests such that there is a reduction of benefit to the person who makes the offer (Pruitt 1981). For example, when negotiating the sale of a fixed resource, the seller offers a price that he/she is willing

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[2]Because of its mixed motive nature, our negotiation task may also be thought of as bargaining. In general, bargaining is "any activity in which each party is guided mainly by his expectations of what the other will accept" (Schelling 1960, p. 21). However, negotiation denotes a special case of bargaining in which there is verbal communication (Morley and Stephenson 1977). Since our study involves verbal communication, we use the term *negotiation* here.

to accept as payment. The buyer may then make a counter-offer lower than that of the seller. The seller may then make a counteroffer that is lower than his/her first offer but higher than the buyer's offer. The difference between the seller's first and second offers represents a concession by the seller. In this way, concession making is ritualized as an exchange of offers and counteroffers (Tutzauer 1992), and is the most widely accepted determinant of negotiated agreement (Magneau and Pruitt 1979; Pruitt 1981; Pruitt and Carnevale 1982).

We focus on the first offer that is made by each negotiator within a dyad, referring to the first individual to make an offer as the first mover, and his/her negotiating opponent as the second mover. First offers by the first and second movers provide valuable information about what kind of agreements would be acceptable, and influence the way negotiators think about the negotiation process (Galinsky 2004; Thompson 2004). For example, first offers can significantly influence negotiators' judgments because they can serve to anchor subsequent offers (Adair et al. 2007; Musweiler and Strack 2000; Northcraft and Neale 1987).

Past research has typically examined concession making in two ways: (1) the frequency of changes in offers and counteroffers over time, termed *concession rate*, and (2) the magnitude of the difference between an individual's offers (e.g., Komorita and Kravtiz 1979; Mannix and Neale 1993; Smith et al. 1982). Since we are primarily interested in comparing concession making as represented only by buyer and seller first offers, concession rate is not of value. Therefore, when we hereafter discuss concession and concession making, we are interested in *concession magnitudes*.

Power. Power is the ability to influence or control others to act in a manner that one desires (Folger and Poole 1984; French and Raven 1959). Although power can come from different sources, we are interested in that which comes from resources that a person possesses and that another person desires (Anderson and Thompson 2004; Folger and Poole 1984; Jasperson et al. 2002).[3] Such resource-based power is common in negotiations, making it most appropriate for negotiation studies (Mannix and Neale 1993; Wolfe and McGinn 2005). In this situation, when one person has resources that are desired by another, an asymmetric resource-based power relationship exists, and the greater another desires the resources, the greater is the power asymmetry (Tjosvold 1986; Wolfe and McGinn 2005). Greater power asymmetry enables the person with greater power to influence

the other to make greater concessions (Mannix and Neale 1993).

Studies on power asymmetry and negotiation have focused on whether balanced power relations lead to better outcomes than asymmetric power relations (e.g., Anderson and Thompson 2004; Mannix and Neale 1993; McAlister et al. 1986; Pinkley et al. 1994). In addition, most studies make predictions about the extent to which agreements occur when power asymmetry exists, without explicit consideration of concession making (Lawler and Yoon 1993; Mannix 1993). Since concession making is what makes agreement more likely (Hamner 1974; Pruitt 1981), we specifically consider the influence of power asymmetry on concession making during computer-mediated negotiation.

Cooperation Theory. Cooperation theory focuses on the exchange of concessions, suggesting that agreement can be reached through a process in which negotiators cooperate by matching each other's concessions (Axelrod 1984; Pruitt 1981; Rhoades and Carnevale 1999). For example, when two individuals are negotiating, a large or small concession made by one negotiator should be matched by a similarly large or small concession by the other negotiator. This theory has been found to describe the typical actions of negotiators (whether or not they are strangers) due to the existence of a powerful norm of reciprocation that results in our feeling obligated to future repayment of favors, such as concessions (Cialdini 1993; Eisenberger et al. 2001; Gouldner 1960). For example, Camerer and Fehr (2006) found economic game participants employed matching strategies. In the specific context of negotiation, Rhoades and Carnevale (1999) found individuals matched their opponents by employing concession making and yielding strategies. Other negotiation studies have found that the rate and size of concessions tend to be matched (e.g., Druckman and Harris 1990; Stoll and McAndrew 1986). Such matching tends to occur whether a negotiator is involved with a single opponent (Schei and Rognes 2003) or multiple opponents (Weingart et al. 2002).

Cooperation theory as applied to negotiation has been based on the assumption that negotiators either have face-to-face contact or have imagined themselves to be in such contact. However, the theory's predictions may not hold when negotiations occur over computer-mediated channels due to differences in (1) the communication process and (2) the nature of the relationship between negotiating parties. This is because these factors are a part of what defines a social structure, and changes in social structure can make significant changes to cooperation (Axelrod 1984). For example, face-to-face contact promotes cooperation through the convergence of nonverbal expressive behavior (Drolet and Morris 2000; Tickle-Degnen and Rosenthal 1990), and the immediacy of

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[3]This type of power is referred to by such names as *reward power, situational power,* or *resource-based power* (Anderson and Thompson 2004; Pfeffer 1981; Pfeffer and Salanick 1978; Yan and Gray 1994).

communication enabled by face-to-face contact promotes reciprocity and equity (Mehrabian 1971; Rubin and Brown 1975). As described next, computer mediation can inhibit nonverbal expressive behavior and can reduce the immediacy of communication, thereby potentially altering the social structure and associated cooperation and reciprocity.

Computer Mediation. Communication is the essence of negotiation (Putnam and Roloff 1992), and the type of communication media used for the process can affect the ability of negotiators to share viewpoints, engage in compromise, etc. (Poole et al. 1992). Clark and Brennan (1991) describe the notion of grounding during communication, which is the process by which individuals use social and other communicated cues to develop a shared sense of understanding and participation. With face-to-face communication, the following characteristics facilitate the transfer of such cues, thereby providing for more efficient and effective grounding (Clark and Brennan 1991; Friedman and Currall 2003):

(1) *Copresence* exists when parties are in the same physical environment and allows each to see what the other is looking at and to see and hear what each other are doing.

(2) *Visibility* allows each party to see the other, but parties do not know what each other are doing or looking at.

(3) *Audibility* allows each party to hear the timing and intonation of speech.

(4) *Simultaneity* enables both parties to send and receive messages at the same time (such as when a party who is speaking sees the other smiling and nodding).

(5) *Sequentiality* enables turn taking to stay in sequence by, for example, allowing each party to know the exact moment when the other has finished communicating.

With video teleconferencing, grounding is aided by all but copresence, while telephone communication is aided by all but copresence and visibility (Friedman and Currall 2003). In contrast, none of these characteristics exist with text-based e-mail (Clark and Brennan 1991; Friedman and Currall 2003).

Of interest here is text-based instant messaging (IM), which is similar to e-mail in that it lacks relational and social cues (Naquin and Paulson 2003), and thereby reduces mutual understanding and participation (Friedman and Currall 2003, p. 1329).[4] For example, individuals cannot see each others'

faces (visibility), hear each others' voices (audibility), or give responses simultaneously with each others' communication (simultaneity). As a consequence, they are unable to carefully time actions and reactions; for instance, they cannot interrupt communication to agree or disagree with some aspect (Clark and Brennan 1991). In addition, the fact that communication is "typically received and written while the writer is in isolation, staring at a computer screen" makes IM "more profoundly asocial" (Friedman and Currall 2003, p. 1329).

Social presence theory (Short et al. 1976), information richness theory (Daft and Lengel 1986), and the social identity model of deindividuation effects (SIDE; Postmes et al. 1998) are in accord with this view, suggesting that IM reduces individuals' abilities to convey nonverbal cues (visibility and audibility) and to provide quick feedback (simultaneity), which results in significant reductions in relationship and socially oriented communication (Hayne and Rice 1997; Spears et al. 2002). For the same reasons, this impact is supported by cuelessness theory (Rutter 1987) and reduced social cues theory (Sproull and Kiesler 1986), both of which suggest that such computer mediation can decrease personalization and increase the psychological distance among communicators. Empirical evidence supports these claims. For example, Kahai and Cooper (1999), Moore et al. (1999), Morris et al. (2000), and Valley et al. (1998) found decreases in social and relationship-oriented communication with different forms of text-based computer-mediated communication when compared with telephone or face-to-face communication. We are concerned here with IM that restricts individuals' abilities to convey relationally and socially oriented information.

Not all researchers agree that text-based computer mediation significantly restricts the communication of relationally and socially oriented information. For example, Rice and Love (1987) indicate that emotion can be communicated through the use of emoticons, such as smiley faces. Although this is true, such emoticons convey "far fewer…clues about emotional states" than do nonverbal cues via face-to-face or telephone (Friedman and Currall 2003, p. 1334). In addition, Walther (1996) and Tidwell and Walther (2002) suggest that individuals can adapt their behavior to the medium to a degree that as much social and relational information can be communicated via text as via face-to-face (although social and relational communication may be at a slower rate). Their examples include instances of e-mail romances, online social support communities, and discussions about sex, love, family, and religion. However, their arguments may not apply to negotiations, since the goals of activities such as e-mail romances are to build relationships and provide support, not to manage conflict; that is, not to "assert one's needs or wishes through differences of opinion" (Friedman and Currall 2003, p. 1334).

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[4]Friedman and Currall make the case for e-mail because it lacks copresence, visibility, audibility, simultaneity, and sequentiality. Since IM also lacks these characteristics, their reasoning holds for instant messaging.
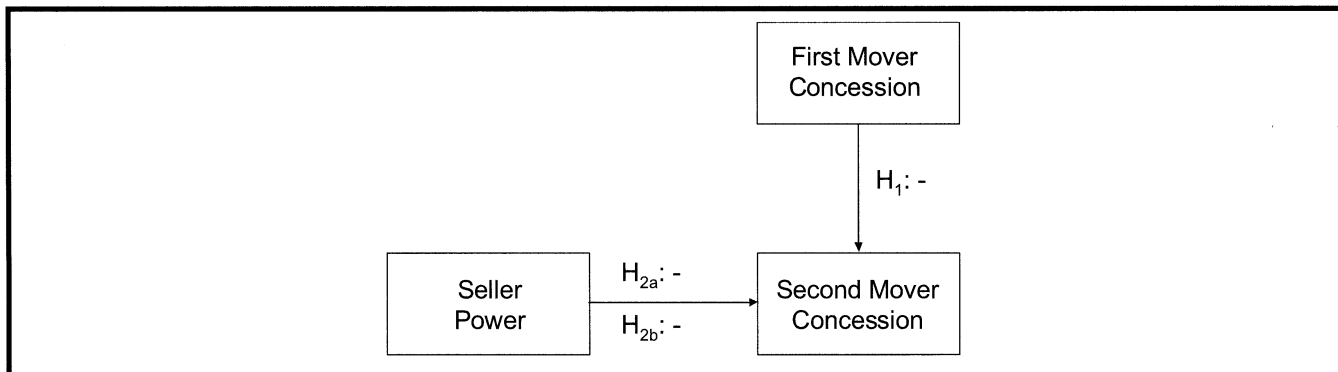
Figure 1. Research Model

In summary, negotiation is a special type of group decision-making in which interested parties have conflicting goals but also have a common cooperative interest in reaching agreement. In such mixed-motive circumstances, concession making plays a key role in reaching agreement, and employing IM when power asymmetries exist may significantly affect the concession-making process. This is described in more detail below and illustrated in Figure 1.

Influence of First Mover Concessions on Second Mover Concessions

Cooperative negotiations occur when negotiators reciprocate (match) each other's concessions; uncooperative negotiations lack such reciprocation and often take an inordinate amount of time, create much psychological strain, and end in disagreement (Pruitt 1981). Negotiators are more motivated to engage in such matching when they care about the equity of outcomes (Marwell and Schmitt 1975; Pruitt 1981) and are positively disposed toward reciprocity (Komorita and Esser 1975; Osgood 1966; Pruitt 1981). These conditions traditionally hold because people tend to be averse to inequity (Adams 1965; Walster et al. 1973) and there is a powerful norm of reciprocation that results in our feeling obligated to future repayment of favors, such as concessions (Cialdini 1993; Eisenberger et al. 2001; Gouldner 1960).

In addition, matching will tend to occur when individuals believe each other to be ready for cooperation (Pruitt 1981), which is more likely when the individuals perceive each other as willing to make concessions (Carnevale and Isen 1986; Pruitt 1981). For example, when individuals are negotiating the price of a commodity, such as a lottery ticket, for which there is information symmetry (McGinn et al. 2003; Valley et al. 1998), each knows the odds and payout (Aumann 1977).

Under such circumstances, the negotiator who makes the second offer (whom we refer to as the second mover) can reasonably place him/herself in the position of the negotiator who made the first offer (whom we refer to as the first mover) and determine the degree to which the first mover is making a concession. Similarly, the first mover can determine the degree to which the second mover is making a concession based on the second mover's offer. Therefore, due to individuals' motivations for equity of outcomes and reciprocity and because the second mover perceives that the first mover is ready for cooperation, it is generally believed that the second mover will reciprocate with concessions of his/her own when he/she perceives that the first mover is making concessions.

However, as described earlier, IM can alter the communication process such that this general belief may not apply. For example, the motivations for equity and reciprocity come in part from social rewards and costs (Whatley et al. 1999), where an individual behaves in an equitable and reciprocal manner in order to gain social acceptance and avoid social shame (Eisenberger et al. 2001; Whatley et al. 1999). Anonymity can diminish these motivations because it reduces individuals' concerns about social evaluation (Pinsonneault and Heppel 1998; Reinig and Mejias 2004), and IM increases anonymity because of the reduction in feedback due to the lack of visibility, audibility, simultaneity, and sequentiality (Friedman and Currall 2003). For example, the lack of nonverbal cues (gestures, head nods, facial expressions, and tone of voice) resulting from the lack of visibility and audibility reduces feedback regarding an individual's behavior (Weisband and Atwater 1999). This makes people less aware that they are interacting with another person and leads to "a greater sense of anonymity" (Weisband and Atwater 1999, p. 633).

IM can also reduce social presence (Hayne and Rice 1997), thereby diminishing social control and stimulating anti-normative behavior (Edinger and Patterson 1983; McLeod 1997). "Without nonverbal and paralinguistic reminders of the social context, people's attention turns away from others and so does their concern with being positively evaluated or with liking the other" (Kiesler and Sproull 1992 p. 104). Individuals are thus less likely to act in socially desirable ways, such as having less sensitivity to equity or reciprocity during negotiation. Thus, increased anonymity and reduced social presence associated with IM can reduce or eliminate individuals' desires for equity of outcomes and reciprocity. As a result, we expect less cooperation and associated matching to occur during IM negotiation.

In addition, anonymity coming from the use of IM can lead to selfishness (Hoffman et al. 1994, 1996), which can cause individuals to attribute the offering of initial concessions to weakness that should be exploited during negotiations (Lindskold and Bennett 1973; Pruitt 1981). Thus, rather than interpreting a first mover concession as an indication of readiness for cooperative negotiation, the second mover may interpret it as weakness to be taken advantage of, and adopt a competitive stance, with efforts directed toward getting concessions from the first mover without incurring concessions him/herself (Pruitt 1981). Thus, although we would expect first mover concession to be matched by second mover concession when negotiations are face-to-face, we expect the following for IM negotiations.

H₁: When negotiations are conducted by IM, concession making by the first mover decreases concession making by the second mover.

Influence of Power Asymmetry on Second Mover Concessions

Power asymmetry can also affect second mover concession, and we expect this effect to be different in IM negotiations depending on whether the second mover is the seller or the buyer. We first address the case when the seller (who is the high power negotiator) is the second mover, and we find no theoretical rationale to expect that negotiating over IM will be any different from negotiations occurring face-to-face. Then we address the case when the buyer (who is the low power negotiator) is the second mover, and we make a case that negotiating over IM is expected to be different than face-to-face.

An individual's power is his/her ability to influence or control another to act in a manner that the individual desires (Folger

and Poole 1984; French and Raven 1959). This power can be derived from the individual's control of resources that the other desires (Anderson and Thompson 2004; Folger and Poole 1984; French and Raven 1959). During negotiations, a more powerful individual can make threats and promises associated with the resource (Folger and Poole 1984) and thereby elicit concessions from less powerful negotiators (Komorita and Kravtiz 1979) while making fewer if any concessions him/herself (Mannix and Neale 1993). This is especially true when the powerful negotiator has a good best alternative to a negotiated agreement (Komorita and Kravitz 1979; Pinkley et al. 1994).

Consider a situation where a buyer desires a lottery ticket that is held by a seller, and can get a loan that can only be used for the purchase of that ticket.[5] Assume also that the ticket is valued by the seller. If negotiations break down, the seller is still somewhat satisfied, since he/she still has the ticket; keeping the ticket is a good best alternative. In contrast, if negotiations break down, the buyer is left with nothing. Therefore, irrespective of the medium over which negotiation is conducted, power asymmetry motivates the seller as second mover to concede less in response to the buyer as first mover concession; increasing power (i.e., with increasing expected value of the lottery ticket) results in greater decreases in seller concessions (De Dreu 1995; Mannix and Neale 1993; Poole et al. 1992). This results in the following hypothesis:

H₂ₐ: When a seller is the second mover, increasing seller power is associated with decreased seller concession making.

The above argument generally also holds for buyers as second movers. That is, when the seller has greater power than the buyer, the buyer will tend to concede more to the seller in order to reach agreement and gain control of the ticket (Komorita and Kravitz 1979; Pinkley et al. 1994). However, IM negotiations can introduce elements that may significantly alter the power–concession relationships for the buyer, when the buyer is both the low power negotiator and the second mover.

In general, independent of the media over which negotiations occur: (1) Low power individuals feel vulnerable to exploitation (Chen et al. 2004; Kramer 1996), which results in anxiety (Mannix 1993; van den Bos et al. 1998). This anxiety is even greater in cases when negotiators are strangers,

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[5]This bargaining situation is similar to one where a trader negotiates the price of a stock and is said to be "going long" on the stock such that the stock itself serves as collateral for the purchase. The uncertainty about the true worth of the stock is in this sense analogues to that of the lottery ticket.

because they lack reliable information about each other (Galinsky 2004). (2) As a result of higher anxiety, low power negotiators are sensitized to indicators that the high power negotiators are being manipulative and cannot be trusted (Kramer 1996). (3) The more a low power individual feels that he/she is being manipulated by a high power individual, the more the low power individual will resist negotiation (Folger and Poole 1984; Lawler and Yoon 1993; Mannix 1993). This resistance can take the form of the individual adopting a competitive rather than cooperative strategy, where strong stances are taken and concessions are reduced or eliminated (De Dreu 1995; Pruitt 1981). While such anxiety and resistance occurs independent of the negotiation media, they are exacerbated when using IM during negotiation because IM can increase the likelihood that low power negotiators will misinterpret (even cooperative) behavior as being manipulative behavior. For example, concession making by the high power negotiator might be interpreted as part of a competitive rather than cooperative strategy (Dirks and Ferrin 2001).

This potential for misinterpretation results from the depersonalization of negotiations that occurs over IM. As described earlier, the psychological distance between negotiators is increased due to the limited communication of social and relational information resulting from using IM. This increased distance reduces individuals' abilities to empathize with each other (Davidson and Friedman 1998), and results in expectations that negotiation opponents will be untrustworthy and engage in unethical behaviors (Kelman and Hamilton 1989; Valley et al 1998). These expectations increase the likelihood that negotiation behavior will be interpreted negatively (Kelman and Hamilton 1989; Valley et al 1998); for example, that behavior will be interpreted as manipulative rather than cooperative. Increasing seller power increases a buyer's dependence (Tjosvold 1986) and associated perceptions of vulnerability and feelings of anxiety. As a result, when a buyer is the second mover and the seller makes an initial concession with the intent of being cooperative, his or her action will be interpreted negatively by the buyer during negotiation via IM. Thus, we offer the following hypothesis:

H_{2b}: When a buyer is the second mover in negotiations between strangers that are conducted by IM, increasing seller power is associated with decreased buyer concession making.

Method

Our hypotheses were tested with data taken from a laboratory experiment that involved 148 students (40 percent female, 56 percent undergraduate, and 65 percent over the age of 24) in a large university. Each participating student was randomly assigned to a negotiating dyad (resulting in 74 dyads) and the role of either seller or buyer; the identity of each dyad member was unknown to the other. We next describe the experimental task and procedure, followed by a discussion of how the constructs were operationalized. For reasons described later, 63 of the 74 dyads were used in the data analyses.

Task

The negotiation object was a computer-displayed lottery ticket. Each student in a dyad was given $10 for participating and was told that at the end of the experiment, he/she had a chance of receiving an extra $10 depending on the amount of points earned. Sellers and buyers were situated in separate locations. Each seller and buyer used a personal computer to see the lottery ticket information as well as to converse with each other, using their PCs for text-based instant messaging. Personal computers were connected such that each simultaneously displayed the same information to individuals in the same dyad.

Earlier, we described negotiation as a special case of group decision-making, where negotiating parties perceive each other's goals to be incompatible with their own, although they must cooperate to reach satisfactory outcomes. This is true with our task. For each dyad, the negotiator who has the greater number of points receives $10 (in addition to the $10 for participating). The number of points for each individual in a dyad is determined as follows. The seller initially has a lottery ticket. If he/she keeps the ticket, and wins the lottery, he/she can win the $10; in this case, the buyer has no chance to win the $10. If the buyer purchases the ticket, the seller has the purchase price and the buyer has the results of the lottery less the amount he/she paid for the ticket. For example, if the buyer gave 9 to the seller for the ticket, the seller has 9 points. If the buyer wins 12 points, he/she is left with 3 points, which is less than the seller, and the seller receives an extra $10. If the buyer wins the 34 points, he/she is left with 23 points, which is greater than that of the seller, and the buyer receives an extra $10. Thus, goal incompatibility exists because the seller wants to extract as much from the buyer as possible while the buyer is penalized for each point he/she gives the seller. However, due to different risk preferences, different expected values, different feelings regarding luck, etc., there are usually a number of prices at which the buyer and seller both believe exchange of the ticket is preferable to no exchange. Thus, they must cooperate to some degree in order to make the exchange occur.

Procedure

As subjects arrived at the experimental site, they were randomly assigned a role (buyer or seller) and escorted to one of two locations, depending on that role. There they received instructions about the game via a power point presentation, and completed three practice rounds of negotiation. During these exercises, individuals were encouraged to ask questions if they were uncertain about the game procedures and objectives. In the practice rounds, they were told that the experiment began when a lottery ticket, a prize wheel, a timer, and instructions appeared on their computer screen. The buyers (sellers) were also told that sellers (buyers) were in a remote location and would see the same information at the same time. Further, they were told that either individual could initiate negotiation by contacting their dyad opponent via the PC. Finally, they were told that they had three and a half minutes with which to complete their negotiations. Before the time elapsed, the seller had to indicate via the PC that he/she was selling the ticket (if an agreement with the buyer was reached) or that he/she was keeping the ticket. If the seller did not make such an indication and the time elapsed, both the seller and buyer would receive no points.[6]

Operationalization of Power

Power differences between negotiators were based on their ownership of the lottery ticket and its expected value. Sellers owned the tickets and buyers could acquire them by borrowing against their potential value. This created a power asymmetry, with sellers having higher power since sellers had control over a resource (the ticket) desired by buyers. The degree of seller power was manipulated by providing half of them with high-expected-value tickets (21 points), which resulted in higher power, and half with low-expected-value tickets (3 points), resulting in lower power. These specific values, and their derivations described next, were determined by random draws (Berg et al. 1986).

The points for each lottery ticket were determined by two chance events as follows. The lottery ticket was displayed with two potential values (12 and 34); the first chance event was that each value had a 50 percent chance of being the actual value. The second chance event was represented as a prize wheel that was displayed next to the lottery ticket (see Figure 2). The "spinning" of this wheel determined whether

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[6]This time limit was based on a pilot study where subjects engaged in the same task as the current study, but in which dyads had no time limit. The maximum time taken by any dyad was about 3 ½ minutes. The maximum time taken by dyads in the current study was 3 minutes.

the ticket holder won the ticket's actual value. For the high expected value lottery, the prize wheel had one colored portion that took up 74 percent of the wheel, and which represented the likelihood of winning if the actual value were 12 (as determined by the first chance event). The prize wheel also had a different colored portion that took up 98 percent of the wheel, and which represented the likelihood of winning if the actual value were 34. Thus, the participants were instructed that the lottery ticket would be either worth 12 or 34 points depending on a coin flip by the computer, and then whether they won the points depended on the computer spinning the prize wheel, and the wheel landing on the appropriate colored portion.

This results in the ticket holder having an expected value of 21 points as determined by a 37 percent chance of winning 12 points (.5 × .74), a 49 percent chance of winning 34 points (.5 × .98), and a 14 percent chance of winning nothing (.5 × .26 + .5 × .02). If the seller decided to keep the ticket and won the lottery (the prize wheel landed on the win area), he/she received points equal to the actual ticket value (either 12 or 34); if the seller lost, he/she got zero points. In either case, the buyer received zero points. If the seller sold the ticket, he/she received points equal to the selling price, and the buyer received points equal to his/her lottery winnings (determined as described above for the seller) less the amount he/she used to purchase the ticket.

The lower expected value ticket used the same points (12 and 34) but the prize wheel was altered to reduce the chances of winning in order to achieve an expected value of 3 points. Specifically, the prize wheel was constructed so that the chance of winning 12 points was 1 percent and of winning 34 points was 17 percent. Therefore, the ticket holder had a 0.5 percent chance of winning 12 points (.5 × .01), an 8.5 percent chance of winning 34 points (.5 × .17), and a 91 percent chance of winning nothing (.5 × .99 + .5 × .83).

Operationalizations of Concession Making

Although not typically examined, first offers can include concessions (Latz 2003; Malhotra 2006). For example, a seller's first offer may be relatively low because he/she wants to increase the likelihood that the buyer will reciprocate with a concession of his/her own, which would be reflected by a relatively high counteroffer (Latz 2003).

It would be nice to determine an individual's concession making by contrasting his/her first offer with the degree to which he/she valued the lottery ticket. For example, we could show each seller the lottery wheel (see Figure 2) prior to negotiations, and ask him/her what would be the least amount

0 points

0 points

12 points

34 points

Note: Since colors cannot be reproduced here, the colored prize wheel
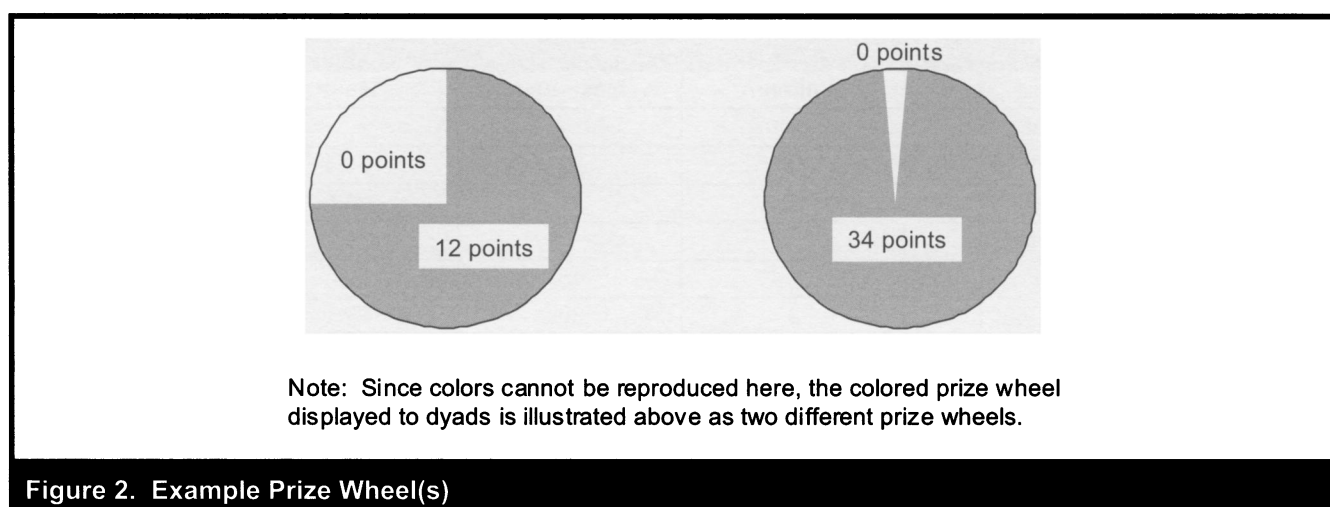displayed to dyads is illustrated above as two different prize wheels.

Figure 2. Example Prize Wheel(s)

for which he/she would sell the ticket. Similarly, we could ask each buyer what would be the most amount for which he/she would buy the ticket. These *a priori* values revealed by the buyers and sellers are called reservation prices. We might then contrast their first offers with their reservation prices in order to determine their degrees of concession. For example, if a seller's reservation price is 20 and his/her first offer is 25, the difference between the two values (5) would reflect a greater concession than a first offer of 30, which would have a difference of 10. That is, the closer a seller's first offer is to his/her reservation price, the more he/she could be said to be making a concession. Unfortunately researchers have found that once negotiations begin, typical buyer and seller behaviors suggest that reservation prices change (Raiffa 1982). For example, a seller who finds he/she dislikes the buyer may increase the reservation price, while a seller who finds he/she likes or empathizes with the buyer may lower the reservation price (Raiffa 1982).

Therefore, without an unobtrusive way to directly determine the values individuals place on their lottery tickets, we employed two measures to help tease out such values. The first assumes that the negotiation strategies of most buyers are similar to each other (either cooperative or competitive) and that the negotiation strategies of most sellers are similar to each other (either cooperative or competitive). We then measure each seller's level of concession making by the difference between a seller's first offer and the average of all sellers' first offers. Similarly, we measure each buyer's level of concession making by the difference between a buyer's first offer and the average of all buyers' first offers. We refer to these two measures as *concession making relative to average*.

In order to reduce the impact of our negotiation strategy assumption, we pair the concession making relative to average measure with one that is based on each individual's perception of the expected value of his/her lottery ticket. Since perceived expected value can play a key role in how an individual values his/her ticket (Berg et al. 1986), we contrast buyer and seller first offers with his/her own expected value of his/her ticket in order to determine concession making. We refer to this measure as *concession making relative to perceived expected value*. Although this allows for individuality in the measurement of concession making, it still is lacking because individual characteristics, such as risk preferences, are not included in the determination of ticket value. While we acknowledge that using one or the other of these two measures would be problematic, we believe that using them together in our analyses is a reasonable approach to estimate first offer concession making. Our two measures are described in further detail next.

Concession Making Relative to Average

The relative to average measure was calculated for the first mover as the difference between an individual's offer and the average offers made by all first movers. This measure of concession varied with the negotiator role and the type of lottery ticket that was the object of negotiation. This is because one would expect a seller's first offer to be higher than a buyer's first offer. In addition, as described earlier, each dyad bargained over one of two types of lottery tickets with different expected values, and these different values should influence first offers. Table 1 supports these expectations. As illustrated, when the lottery ticket had a high expected value, 11

Table 1. First Offer Detail					
	N*	Minimum	Maximum	Mean	Std. Deviation
High Expected Value Ticket					
Buyer	11	10	29	20.4	6.1
Seller	23	20	32	28.5	3.6
Low Expected Value Ticket					
Buyer	15	1	15	8.1	3.9
Seller	14	8	30	22.1	8.1

*Total high and total low expected value tickets are not equal due to the nine excluded dyads.

buyers made the first offer with a mean of 20.4, and 23 sellers made the first offer with a mean of 28.5. In contrast, 15 buyers made the first offer with a mean of 8.1, and 14 sellers made the first offer with a mean of 22.1, when the lottery ticket had a low expected value. Thus, one of these four different averages was employed when determining concession for a first mover, depending on whether he/she was a buyer or seller and depending on whether the lottery ticket had a high or low expected value.

When measuring a seller's concession, the seller's offer was subtracted from the appropriate average; when measuring a buyer's concession, the appropriate average was subtracted from the buyer's offer. Thus, more (less) concession had larger (smaller) values. For example, if the lottery ticket had a high expected value and the seller was the first mover offering the ticket for 30, this represents a concession of -1.5 (28.5 − 30); a seller offer of 26 would represent a seller concession of 2.5 (28.5 − 26). The 2.5 represents a greater concession by the seller.

Second mover concession was calculated in a manner similar to that for the first mover. If the second mover was the seller, his/her offer was subtracted from the average seller-as-first-mover offer, as described above. If the second mover was the buyer, the average for buyer-as-first-mover offer was subtracted from his/her offer. The averages of seller and buyer first offers were used since these offers were made in the absence of other offers, and would therefore better reflect any concession making.

These concession measures are reasonable to the degree that the buyers acted relatively consistently and the sellers acted relatively consistently. For example, if sellers were typically cooperative, on average, their first offers would be relatively low, and higher first offers could reasonably be described as a lack of concession making. What is missing is some measure that accounts for individual seller and buyer idiosyncrasies. We therefore employed a second concession making measure, described next.

Concession Making Relative to Perceived Expected Value

Before beginning negotiations, each participant was shown the lottery ticket in a manner similar to that in Figure 2. They were then asked the following two questions:

- Based on the prize wheel, how do you rate your chance of winning the 12 points?

- Based on the prize wheel, how do you rate your chance of winning the 34 points?

They were asked to respond to each question using a 1 to 7 scale, with a higher rating reflecting a greater chance. We converted the answers to these two questions into individuals' perceived expected values by multiplying the answer to the first question by 12, multiplying the answer to the second question by 34, adding the two products, and then dividing the sum by 7. The result was then multiplied by 0.5, resulting in a measure of perceived expected value for the ticket. For example, if an individual answered 5 to the first question and 7 to the second question, perceived expected value would equal 21.3 (calculated as: $0.5 \times [5 \times 12 + 7 \times 34]/7$).

Concession making was then calculated in the following ways. Each buyer's perceived expected value was subtracted from his/her offer to determine his/her concession making. Each seller's offer was subtracted from his/her perceived expected value to determine his/her concession making.

Note that we did not directly ask participants for their expected value estimates. We took a more circuitous approach in order to reduce the degree to which they were primed to focus on expected value during negotiation. That is, if participants were asked to enter expected values during the practice rounds, there would be some individuals unfamiliar with the concept and/or its calculation. If we provided them with the concept definition and/or the calculation

procedure, this would serve to orient all participants to a more rational and less intuitive determination of lottery ticket value and thereby affect the negotiation process.

Operationalization of Agreement

In the context of this study, an agreement occurred when negotiators' offers were equal, resulting in the lottery ticket being exchanged from seller to buyer. When this occurred, an agreement indicator had a value of 1. Otherwise, it had a value of 0.

Operationalization of Control Construct

The time taken to respond can be used strategically during negotiation (Carnevale and Lawler 1986; De Dreu 2003). Therefore, we included a time construct with a path to second mover concession. This construct had two indicators: (1) the time taken for the second mover to respond to the first mover's offer and (2) the total time taken for the dyad to conclude negotiations.

Results

An experiment was employed to test the above hypotheses. The research model presented in Figure 1 was analyzed using partial least squares (PLS),[7] a multivariate analysis technique for testing structural models that allows the simultaneous analysis of multiple criterion and predictor constructs (Barclay et al. 1995; Wold 1985). In PLS, construct indicators can be modeled as reflective or formative (Fornell and Bookstein 1982), with reflective indicators determined by the construct they represent and formative indicators determining the construct they represent (Chin and Gopal 1995). Since seller power in the Figure 1 model has one indicator, no distinction is made between formative and reflective. First and second mover concession constructs each have two reflective indicators. When constructs in a model have only single and/or reflective indicators, PLS can be used when there are as few as five data points for each path leading to the construct that has the most incoming paths (Falk and Miller 1992). In the Figure 1 PLS model, there are no more than two incoming paths to any one construct. Our full data set exceeds the 10 data points required by these incoming paths.

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[7]PLSGraph version 3. 00 Build 1126 was employed in the study.

Hypotheses 2a and 2b require that we distinguish between whether first and second movers are buyers or sellers. We thus divided the data in two subsets, one in which the seller was the first mover and one in which the buyer was the first mover. Each of these subsets exceeds the required 10 data points.

Measurement Model Results

The first step in examining the measurement model is to determine measure adequacy. To ensure that items reliably measure the constructs they are designed to measure, each item should have a loading of at least 0.6 on its own construct (Bagozzi and Yi 1988). As illustrated in Table 2, all items exceed this requirement. Composite scale reliabilities were calculated for the constructs based on item loadings and, as illustrated in Table 2, were all above the 0.70 threshold (Nunnally and Bernstein 1994). When the average variance extracted for a construct is larger than that construct's variances with other constructs, this indicates that each construct is more highly related to its own measures than to other constructs, and that construct convergent and discriminant validities are supported. As presented in Table 3, this is the case for all constructs. In addition, as illustrated in Table 2, all average variances extracted were above the 0.50 recommended level (Fornell and Larcker 1981; Chin 1998).

Structural Model Results

Though 74 dyads participated in the experiment, only 63 were used for PLS analysis because 2 had no offers from the second mover and the second mover offers in the other 9 did not include a specific price; these 9 dyads are described later in more detail. Hypotheses 2a and 2b require that we divide our data into two sets, depending on whether the first mover was a buyer or seller. The seller-first data set consisted of 37 dyads, while the buyer-first data set consisted of 26 dyads. Descriptive statistics for these two data sets are provided in Table 4, and PLS results are illustrated in Figures 3 and 4. PLS generates estimates of standardized regression coefficients for the paths in a model's structural component. In order to determine the significance of these paths, jackknifed standard error estimates for the paths are obtained using the blindfolding procedure with an omission distance of 11 (Sambamurthy and Chin 1994). Figures 3a and b also show R^2 values in parentheses (which is the proportion of a construct's variance that is explained by constructs having paths leading to it).

Hypothesis 1 is supported at $p < .05$ by both data subsets: when the seller (buyer) is second mover, he/she meets conces-

Table 2. PLS Concession Construct Indicators, Factor Loadings, Average Variances Extracted, and Composite Scale Reliabilities

	Range of Factor Loadings	Average Variance Extracted	Composite Scale Reliability
Seller-First Data Set			
First Mover (Seller) Concession	.94 – .95	.89	.94
Second Mover (Buyer) Concession	.95 – .98	.93	.97
Buyer-First Data Set			
First Mover (Buyer) Concession	.97 – .98	.95	.98
Second Mover (Seller) Concession	.91 – .92	.84	.91

Table 3. Average Variance Extracted by PLS Concession Constructs (Diagonal Elements) and Shared Variance Between Constructs (Off-Diagonal Elements)

Data Set, Constructs	First Mover (Seller) Concession	Second Mover (Buyer) Concession	First Mover (Buyer) Concession	Second Mover (Seller) Concession
Seller-First Data Set				
First Mover (Seller) Concession	.89			
Second Mover (Buyer) Concession	.10	.93		
Buyer-First Data Set				
First Mover (Buyer) Concession			.95	
Second Mover (Seller) Concession			.01	.84

Table 4. Descriptive Statistics for Data Sets

| Data Set, Constructs, Indicators	N*	Minimum	Maximum	Mean	Std. Deviation
Seller-First Data Set					
First Mover (Seller) Concession Construct	37	-13.5	12.0	-4.6	5.2
First Mover (Seller) Concession Relative to Average	37	-7.9	14.1	0.0	5.6
First Mover (Seller) Concession Relative to Perceived Expected Value	37	-17.0	6.0	-3.2	4.7
Second Mover (Buyer) Concession Construct	37	-7.7	17.9	1.9	5.8
Second Mover (Buyer) Concession Relative to Average	37	-8.4	16.9	1.4	5.5
Second Mover (Buyer) Concession Relative to Perceived Expected Value	37	-15.0	11.0	-1.9	5.3
Seller Power	37	0.0	1.0	0.6	0.5
Buyer-First Data Set					
First Mover (Seller) Concession Construct	26	-10.7	9.8	0.3	5.4
First Mover (Seller) Concession Relative to Average	26	-10.4	8.6	0.0	4.8
First Mover (Seller) Concession Relative to Perceived Expected Value	26	-17.0	0.0	-4.2	4.4
Second Mover (Buyer) Concession Construct	26	-14.3	4.0	-3.8	4.3
Second Mover (Buyer) Concession Relative to Average	26	-6.5	12.1	1.7	4.9
Second Mover (Buyer) Concession Relative to Perceived Expected Value	26	-10.0	13.0	-1.3	4.6
Seller Power	26	0.0	1.0	0.4	0.5
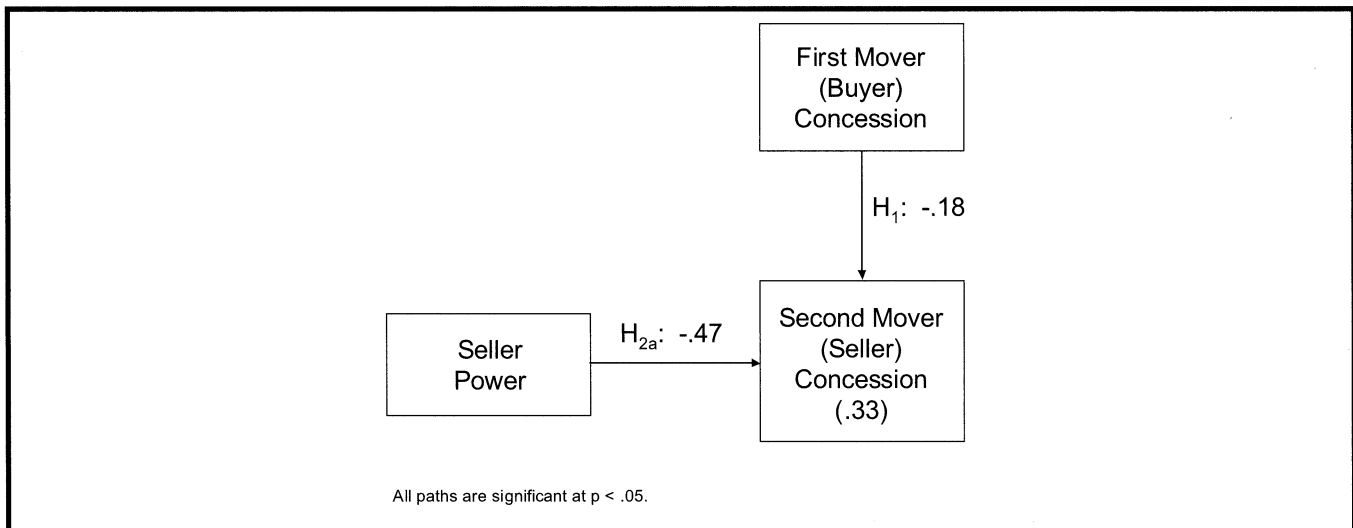
Figure 3. PLS Results for Data Subset with Buyer as First Mover
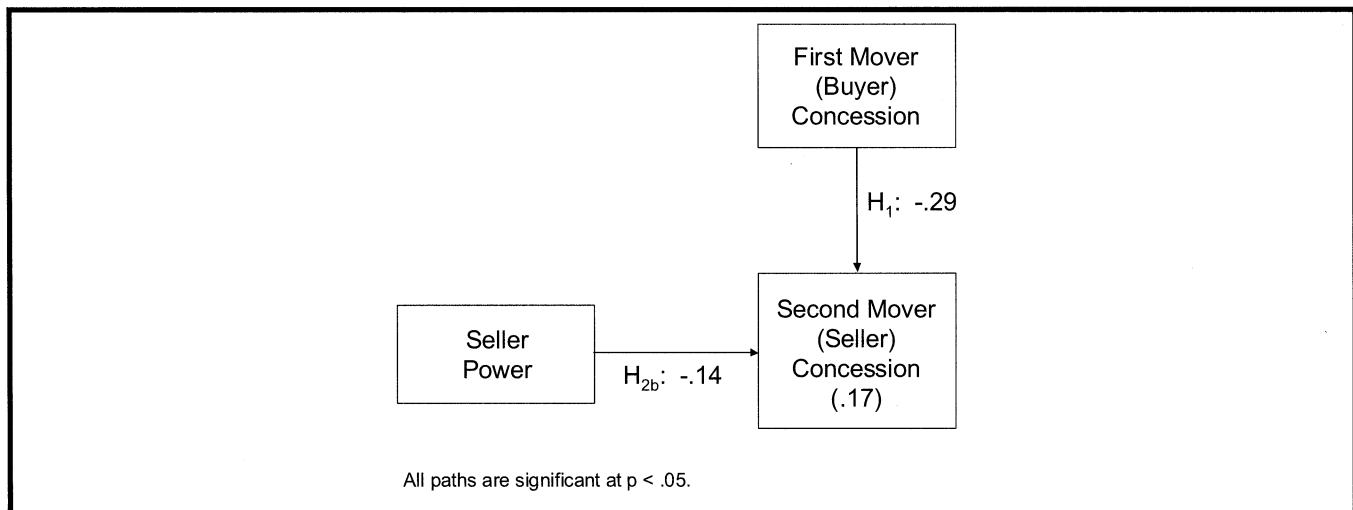

Figure 4. PLS Results for Data Subset with Seller as First Mover

sion making by the buyer (seller) as first mover with decreased concessions of his/her own. Hypotheses 2a and 2b are both supported at $p < .05$: increasing seller power was met with decreased concession making by both the buyer and seller as second movers.

Post Hoc Analyses Considering Agreement

Thus far, we have focused on concession making, with the assumption that larger concessions increased the likelihood of reaching agreement. In this section, we validate this assump-

tion. We also examine whether the relationship between first mover concession and the likelihood of reaching agreement differs when using computer mediation as compared to face-to-face. We follow this with an examination of concession equity when agreement is reached. The purpose of these analyses is to provide greater insight into the implications of the results described above.

The results illustrated in Figures 3 and 4 supported our hypotheses that, irrespective of whether the buyer or seller was the first mover, (1) the influence of the first mover's concession on the second mover's concession was negative

and (2) the influence of seller power on the second mover's concession was negative. This common pattern enables us to pool our data when we next examine the influence of these relationships on the likelihood of dyads reaching agreement and when we examine the influence of these relationships on total concession when agreement was reached.

Likelihood of Reaching Agreement

In a negotiation over the price of a lottery ticket, an agreement is reached when both negotiators' offers are the same. Therefore, independent of the communication media, negotiations move toward agreement via concession making (Pruitt 1981), and we thus expect that concession by the first and by the second movers both increase the likelihood that agreement will be reached. Figure 5 illustrates the PLS results when we include the influence of first and second movers' concessions on agreement. All paths are significant ($p < .05$) and positive, thereby supporting our expectations that (1) the pooled data result in the same relationships that were found when the data were separated into buyer as first mover and seller as first mover, and (2) both first and second movers' concessions have positive influences on the likelihood of agreement.

As illustrated in Figure 5, the direct influence of first mover concession on agreement was positive, with a path coefficient of .44. However, the indirect influence, working through seller concession, was -.14 (computed as -.43 × .33), decreasing the overall influence of first mover concession on agreement to .30. These first mover influences are illustrated in Figure 6, where the likelihood of reaching agreement is plotted against first mover concession.[8]

As shown, in order to have a good likelihood (e.g., 70 percent) of achieving agreement, first movers had to make greater concessions than the average. For example, when seller power was low (high), first mover concession was 8.3 (10.9), which is significantly greater ($p < .05$) than the average concession, which was equal to zero. Of interest here is whether our results differ from those which would have been expected if negotiations occurred face-to-face. As described earlier, with face-to-face negotiation, we would expect the

influence of first mover concession on second mover concession to be positive rather than negative. In addition, we would expect the influence of seller power to be positive rather than negative when the buyer was the second mover. We therefore constructed a hypothetical likelihood of agreement for face-to-face negotiation by (1) using the same values we found for our high seller power regression, (2) changing the valence from negative to positive for the influence of first mover concession on second mover concession, and (3) changing the valence from negative to positive for the influence of high seller power on second mover concession. This is illustrated in Figure 6, which shows that in order to reach a 70 percent likelihood of agreement, first mover concession would have been 3.2. This is significantly less ($p < .05$) than the high seller power 70 percent likelihood of agreement point for computer mediation (which is 10.9), and suggests that reaching agreement with computer mediation requires the first mover to offer significantly greater concessions.

Total Concession Once Agreement is Reached

The negative relationship from first to second mover concession in Figure 5 indicates that, with computer mediation, second movers tend not to reciprocate concessions. Thus, first movers may be at a disadvantage in the sense that, when an agreement is reached, a first mover may regret that a transaction occurred because he/she feels that too much was conceded to the second mover (winner's curse, seller's regret, or buyer's remorse; Thaler 1992). In a manner similar to our examination of agreement above, we added total concession for the first and second movers as dependent variables to our initial model. It is reasonable to examine the impact of first and second mover initial concessions on their total concessions because, as we described earlier, first offers provide information about what kind of agreements would be acceptable, influence the way negotiators think about the negotiation process, and serve as anchor points for subsequent offers.

Figure 7 illustrates a PLS model run with the 30 dyads in which agreement was reached. Total concession for each negotiator was determined in a way similar to that for initial concession. The total concession construct for the seller and for the buyer thus consisted of two items: their total concession relative to average and their total concession relative to perceived expected value. Total concession relative to average contrasted the final buyer (seller) offer with the average of all buyers' (sellers') initial offers, taking into consideration whether the lottery ticket had a high or low expected value. Total concession relative to perceived expected value contrasted the final buyer (seller) offer with his/her perceived expected value.

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[8]The formula for this graph is: Agreement = 0.57 + 0.0156 First Mover Concession – .04 SellerPower. Using an approach similar to that of PLS, we first regressed Agreement on First Mover Concession and Second Mover Concession. This resulted in: Agreement = .59 + .022 First Mover Concession + .016 Second Mover Concession. We next regressed Second Mover Concession on First Mover Concession and Seller Power, and found: Second Mover Concession = -1.166 – .396 First Mover Concession – 2.49 Seller Power. Substituting this for Second Mover Concession above resulted in the formula used in the graph.
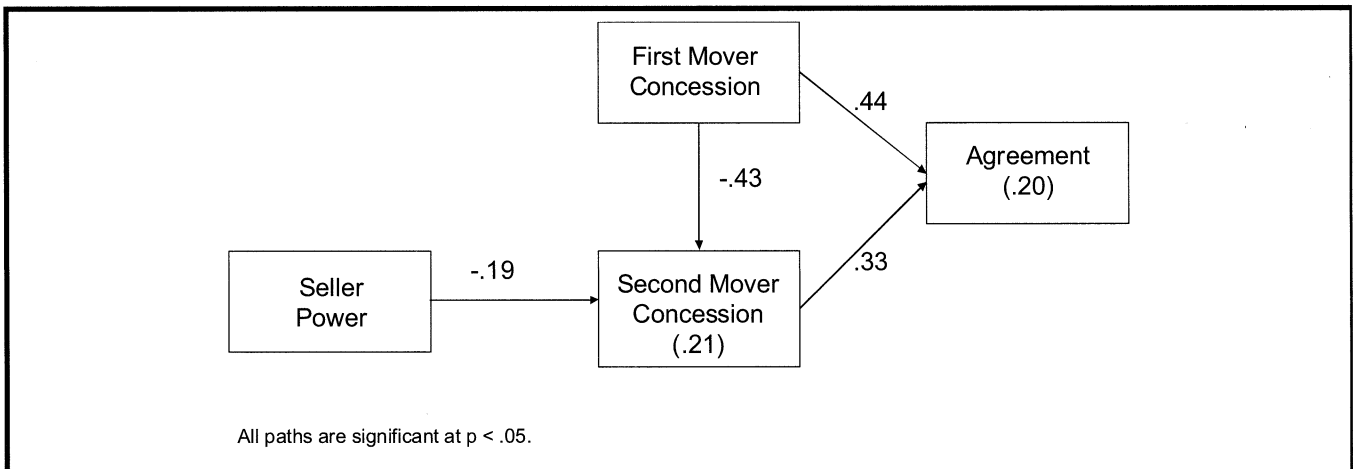
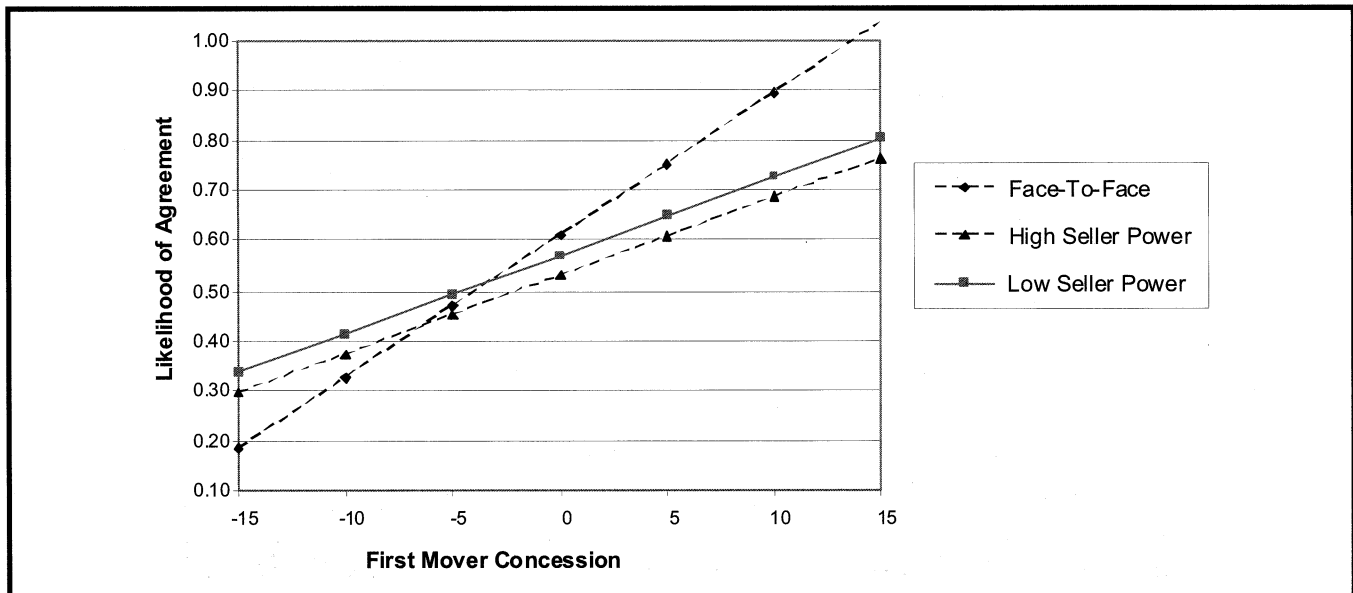**Figure 5. PLS Results for Agreement with Complete Data Set**

Figure 6. Likelihood of Agreement Relative to First Mover Concession and Seller Power

All paths were significant at $p < .05$ except that from seller power to second mover initial concession. As illustrated, the impact of the initial concession by the first mover on his/her total concession had a combined path of .83 (computed as .68 + . 32 × .46). The impact of the initial concession by the first mover on the second mover's total concession was -.77 (computed as -.57 - .32 × .61). Thus, increasing seller initial concession became more costly to him/her in terms of concession equity, since the total concessions became greater for the seller and less for the buyer. Figure 8 illustrates this model, showing that first and second mover total concessions became equal when the first mover's initial concession

reached zero.[9] Thus, for example, when the first mover's initial concession equaled 8.3 (resulting in at least a 70 percent likelihood of agreement; see Figure 6) total concession for the first mover was 10.4 (see Figure 8) and total concession for the second mover was -2.1 (see Figure 8), indicating a significant ($p < .05$) first mover disadvantage.

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[9]The formulas employed in this graph are: First Mover Total Concession = 3.37 + .84 First Mover Initial Concession and Second Mover Total Concession = 3.67 – .70 First Mover Initial Concession. These formulas were determined based on the model in Figure 7 and in a manner similar to that described for the Likelihood of Agreement graph.
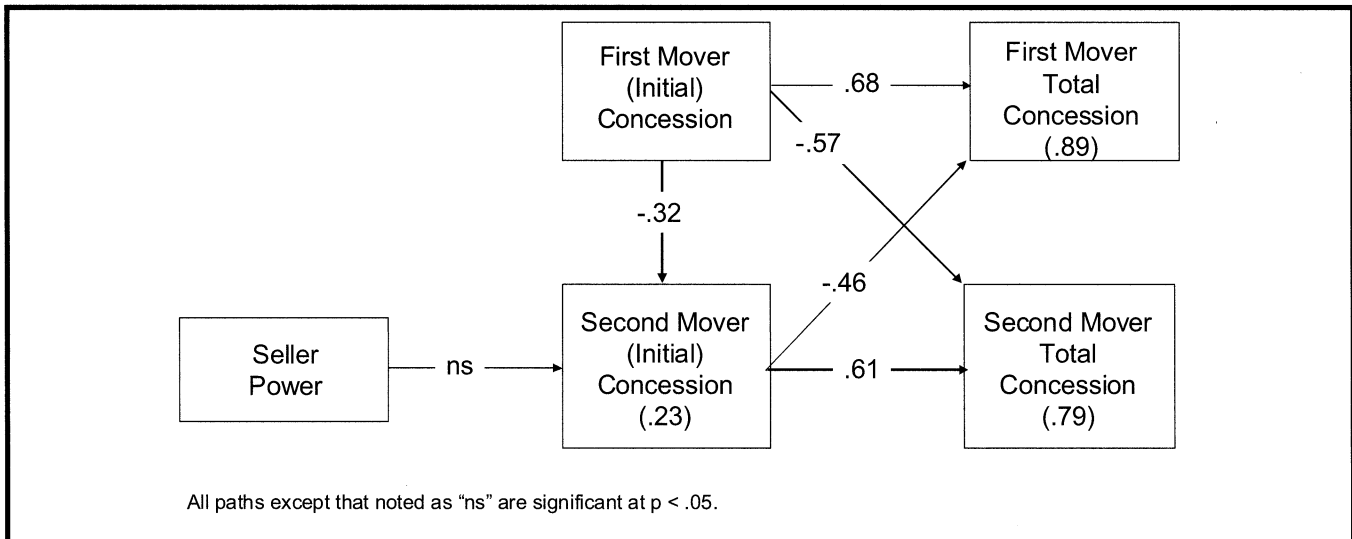
Figure 7. PLS Results for Total Concession Given an Agreement Has Been Reached
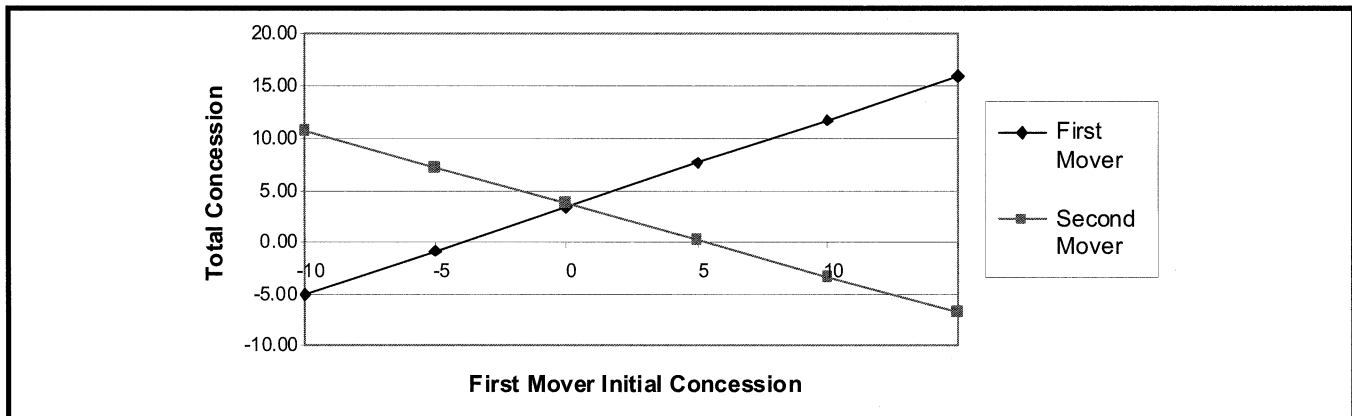

Figure 8. Where There Is Agreement: Influence of First Mover's Initial Concession on First and Second Movers' Total Concessions

Of the nine dyads that were excluded from PLS analyses, the seller was the first mover in seven. For example, the seller in one dyad started with an offer of 25, to which the buyer replied "Can you offer me a better price?" As a result, the seller came down to 23. One might suspect that this non-price second mover strategy would be employed more often when the first mover's offer was relatively unreasonable. However, the average seller as first mover's initial concession for this excluded group of seven dyads was -3, which is not significantly different than the non-excluded (seller as first mover) group's average of - 4.6 (p > .53). In addition, this non-price second mover strategy did not have a significantly greater influence on the likelihood of agreement (p > .44): 57 percent

(4 out of 7) of the excluded dyads reached agreement while 45 percent (17 out of 37) of the seller-as-first-mover non-excluded dyads reached agreement. Finally, this strategy did not appear to influence the first mover's total concession disadvantage when there was agreement. Within the excluded dyads, total concession for the first mover averaged 13.3, while that for the second mover averaged 0.6; the difference is significant (p < .05), suggesting a first mover disadvantage held for the excluded dyads.

As with agreement, it is of interest to determine if our results differ from those which would have been expected if negotiations occurred face-to-face. Researchers suggest that agree-

ment is more likely the more that negotiators rely on a matching strategy. Pruitt (1981) recommends the use of matching because it is effective in producing a desire for negotiators to work together in search of a mutually acceptable agreement. This strategy is also recommended because it has a reinforcement effect as concession making brings reward and a lack of it leads to punishment. In this way, concession making is sustainable and more likely to result in agreement (Kwon and Weingart 2004; Shell 1999; Wall 1977).

With such a strategy, negotiators should mimic each other in that the degree of concession in the first mover's initial offer should be met with the same degree of concession by the second mover's initial offer. Thus, when there is agreement the correspondence between first and second mover offers should have a very high positive correlation. As a result, in Figure 7, the path coefficient from first mover to second mover initial concession should be positive and close to one. For simplicity, let us assume that it is equal to positive one. This would result in a combined path coefficient from first mover initial concession to first mover total concession of about .22 (computed as $.68 - .46 \times 1$), while that from first mover initial concession to second mover total concession would be about .04 (computed as $1 \times .61 - .57$). The difference between these two coefficients of .18 is not significantly different from zero (pooled se = .11). Thus, hypothetical total concession lines drawn for first and second movers in Figure 8 would be approximately superimposed and approximately horizontal, indicating no expected difference between first and second mover total concession for any level of first mover initial concession. This supports our contention that, unlike face-to-face negotiation, computer mediation can result in significant first mover disadvantages in terms of concession equity once agreement is reached.

Discussion ▮▮▮▮▮▮▮▮▮▮

Past research examining the effect of communication media on negotiations have related different media to outcomes, such as likelihood of agreement, (e.g., Carnevale and Isen 1986; Purdy et al. 2000; Valley et al. 1998) and have examined the effects of process structuring systems on negotiation outcomes (e.g., Dennis et al. 1988; Foroughi et al. 2005; Lim and Benbasat 1993). In contrast, our research focuses on why and how computer media affect the negotiation process itself, and on how changes in this process affect negotiation outcomes (specifically, the likelihood of agreement and concession equity). With this process focus, we make several contributions to research and identify implications for practice. We end this section by addressing the

limitations of our study and associated opportunities for future research.

Contributions to Research

Perils of Being a First Mover. In contrast to theoretical and empirical evidence that is based on face-to-face negotiations, we found first mover initial concessions were not matched by second movers when negotiating over computer media. We hypothesized that this was due to increased anonymity and reduced social presence resulting from computer mediation, which can reduce second movers' motivations for equity and reciprocity and can increase their selfishness. As a result, first movers had to make greater initial concessions than the average in order to achieve a good likelihood (e.g., 70 percent) of reaching agreement. This first mover disadvantage also held when contrasted with hypothetical face-to-face negotiations: in order to achieve similarly good likelihoods of reaching agreement, first movers using computer mediation had to offer greater initial concessions than our hypothetical face-to-face first movers. In addition, once agreements had been reached, total concessions by first movers were greater than that of second movers. Thus, in contrast to face-to-face negotiation, computer mediation appears to put first movers at a significant disadvantage both in terms of initial concessions required to reach agreement as well as total concessions once agreement has been reached.

Seller Power. When sellers' power increased during computer-mediated negotiation, we found that buyers as second movers reduced their concession making. Thus, increased sellers' power was found to decrease the likelihood of reaching agreement when buyers are second movers.[10] This was hypothesized to occur in part due to depersonalization associated with computer mediation, which can increase buyers' distrust of sellers' motives. Interestingly, we did not find that sellers' power affected total concession once agreement had been reached. We speculate that this may have been due to the relatively low statistical power of the analyses, since only 30 dyads reached agreement.

Model Simplification and Data Pooling. We also found that the influence of the first mover's concession on the second mover's concession and the influence of seller power on the second mover's concession were both negative. These effects were independent of whether the first mover was the buyer or the seller. In contrast to an examination of face-to-face data, this allows researchers investigating computer-mediated

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[10]When sellers were second movers, increased sellers' power resulted in decreased sellers' concession; however, this was expected based on extant negotiation theoretical and empirical evidence.

negotiation to ignore whether the first mover is buyer or seller for asymmetric power relations between these negotiators. As a result, theoretical models can be simplified and data can be pooled, enabling an increase in power analyses.

Measuring First Offer Concession. As described earlier, first offers are important because they provide information about what kind of agreements would be acceptable, influence the way negotiators think about the negotiation process, and serve to anchor subsequent offers. It is, therefore, of interest to capture the degree of concession represented by first offers. However, researchers examining concession making do not typically include first offer concessions in their analyses. We developed two measures that attempted to get at this concession. The first compared an individual's first offer to the average of first offers, while taking into consideration whether the individual was a buyer or seller and the expected value of the lottery. The second compared an individual's first offer to that individual's perceived expected value of the lottery. Each measure by itself has significant problems. For example, the first does not account for individual idiosyncrasies in that it assumes individuals employ similar negotiation strategies (such as cooperation). The second provides a glimpse at individuals' idiosyncrasies, but does not take in to account such issues as their risk preferences. However, taken together, we believe that these measures provide a good start at measuring first offer concession, and believe that they can be fruitfully employed by future negotiation researchers.

Implications for Practitioners

Negotiators are generally encouraged to make first offers (Adair et al. 2007; Galinsky 2004; Galinsky and Mussweiler 2001) and to make concessions (Malhotra 2004; Moore et al. 1999; Walton and McKersie 1991). However, we found that when negotiating using IM such behavior can result in a disadvantage independent of whether the first mover was the seller or buyer. For example, we found that if either the seller or buyer as first mover (1) desired a better than 70 percent likelihood of agreement, he/she was at a disadvantage in that he/she typically had to offer more than average initial concessions and (2) this typically resulted in more first mover than second mover total concessions by the time agreement was reached. In addition, it appears that this disadvantage holds whether the second mover countered with a specific price or used a counteroffer strategy that did not indicate a price (e.g., the buyer telling the seller: "your price is too high"). These findings suggest that an individual who negotiates via IM may be well advised to wait and be the second mover. Or, if the individual is the first mover and concession equity is important, he/she should make an aggressive first offer (that

does not include a significant concession; Galinsky 2004) with the realization that this can significantly reduce the likelihood of reaching agreement.

We also found that sellers should be careful when using IM to negotiate because buyers tend to (mis)interpret seller behavior in negative ways, and this reduces the likelihood of reaching agreement. For example, instead of interpreting greater seller concession as a sign of cooperation, buyers may interpret it as part of a competitive manipulation strategy and will, therefore, adopt a more competitive stance. Thus, it may be useful for a seller to begin with multiple smaller concessions rather than a single large concession. The rationale for this strategy is to help overcome the buyer's mistrust with a number of relatively small seller behaviors that demonstrate cooperation. This type of gradual concession making is in accord with the Graduated and Reciprocated Initiatives in Tension-Reduction (GRIT) proposal of Osgood (1959). GRIT can be an effective mechanism for overcoming problems of mistrust as it stimulates reciprocity (Pruitt 1981; Shell 1999) and makes the recipient of a series of small concessions feel that agreements are fair (Kwon and Weingart 2004). It appears then, from our results, that some form of GRIT might be well suited for IM negotiations.

These findings can be applied to online dispute resolution services as well as the new form of e-commerce site that allows buyers and sellers to engage in price negotiations via IM (Business Wire 2008). For example, when the buyer and/or seller are not satisfied with a transaction following an online auction (such as eBay) they can attempt to resolve their differences through negotiation, using an online dispute resolution service such as SquareTrade. SquareTrade and other dispute resolution services typically require negotiations to begin immediately, with the injured party describing the problem along with a potential solution (Katsh and Rifkin 2001). Our findings suggest that the first negotiator to make an offer is typically at an equity disadvantage when agreement is reached. Thus, for example, if the dissatisfied party is a buyer of a laptop computer, he/she would be well advised not to be the first to suggest a solution, but rather he/she should describe the problem and let the seller respond with a first offer. Further, as the value of the negotiated item increases, and if the seller makes the first offer, it may be beneficial if the seller follows a GRIT pattern of concession making.

Limitations and Future Research Opportunities

Contributions of this study should be viewed with recognition of its limitations, and, as described next, these limitations can suggest areas for future research.

Strangers and Internal Validity. There may be an internal validity concern regarding the degree to which we can attribute our results to the use of IM or the fact that the negotiators we observed were strangers. Theoretical support for H_1 was based largely on the norm of reciprocity, and the associated tendency for individuals, whether they are strangers or not, to match concessions during negotiations. Empirical support for such reciprocation has been found in face-to-face negotiations among strangers (e.g., Rhoades and Carnevale 1999), which suggests that it is reasonable to attribute our H_1 findings (i.e., the lack of reciprocation) to the use of IM.

Theoretical support for H_{2b} was based on multiple contributing factors. In general, theory suggested that low power individuals are anxious and resistant to being manipulated, and that this anxiety is greater in cases when negotiators are strangers. Added to this is the increased potential for IM users to misinterpret one another's actions. Taken together, we hypothesized that when buyers were second movers, they would tend to resist seller power when negotiating over IM. In contrast to H_1, it is much less clear regarding the relative roles being strangers and using IM had in relation to our H_{2b} results. It would, therefore, be good to disentangle these influences in future studies.

Strangers and External Validity. Another concern is in regard to external validity. However, negotiations among strangers is less limiting than it might appear since there is an increasing incidence of such negotiations, at least for initial encounters and associated agreements.[11] Nevertheless, negotiations certainly can occur between individuals who are not strangers, and in such circumstances, our model may require modification. For example, discussions supporting H_1 were based on IM resulting in anonymity and reduced social presence, which reduced motivations for equity and reciprocity. However, when social identity and in-group status are salient, anonymity and reduced social presence can actually increase motivations for equity and reciprocity (Lea et al. 1992; Moore et al. 1999; Postmes et al. 2001). Thus, although being strangers is not necessary for H_1, it reduces the possibility of salient social identity and ingroup status.

Negotiation Time and Number of Issues. Our study was based on a relatively brief encounter between negotiators concerned with a single issue (price). This is not as unusual as it might appear because time limits are common in negotiation as negotiators desire an end to the uncertainty and

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[11]This is especially true with online dispute resolution, which often occurs between buyers and sellers who are strangers to each other (Rabinovich-Einy 2006; Tyler 2004).

emotional demands of the process and their constituents often press for quick resolution (Carnevale et al. 1993; De Dreu 2003). Furthermore, although many negotiations are concerned with multiple issues, they tend to progress on an issue-by-issue basis (Morris et al. 2002), with a single issue (such as price) often dominating while other substantive issues are considered tangential (Kwon and Weingart 2004). Nevertheless, it is possible that if negotiators had more time for negotiation and were concerned with multiple issues, more complex concession making would occur that might affect our findings regarding, for example, the peril of being a first mover. Future studies that permit IM negotiations for longer periods and that involve multiple issues will provide an opportunity to examine the generalizability of our results.

Subject Motivation. The most a subject could earn in our study was $20. One might question whether the concession process we found might be different than that for real-life conflict settings in which the stakes or rewards are likely to be much greater. However, cooperation theory and the associated matching strategy have been found to be prevalent in both low stake games as well as circumstances with much higher stakes (Ma et al. 2006; Polzer et al. 1995). For example, the matching strategy was found in a single-issue labor-management negotiation over compensation at the level of hourly wage rates between $50 and $70 per hour and annual wage rates between $80,000 and $112,000 per year (Ma et al. 2006). Thus, we believe that our results can reasonably be generalized to the type of negotiations that, for example, are commonly handled by online dispute resolution facilitators such as SquareTrade and Cybersettle.

In addition, prior research has identified culture (Adair et al. 2004; March 1990; Roemer et al. 1997), gender (Stuhlmacher et al. 2007; Stuhlmacher and Walters 1999), and the communication of affect (Anderson and Thompson 2004; Fridlund 1994) as important determinants of negotiation outcomes. Future research in computer-mediated negotiations would do well to incorporate these elements.

Conclusion

It appears that conducting negotiations over computer media may be significantly different than negotiating face-to-face, thereby requiring different strategies and procedures. For example, we found that traditional cooperative strategies encouraging individuals to make the first offer and to make concessions may be less appropriate during IM negotiations. This suggestion is based on our finding that the well-established norm of reciprocity, which tends to be followed in

face-to-face negotiations (McGinn et al. 2002), tends to be violated during IM negotiations. Though the extant literature broadly states that violations of social norms are more likely in computer-mediated communication because of a reduction in social cues (Siegel et al. 1986; Sproull and Kiesler 1991), our results specifically demonstrate violations of the reciprocity norm. Such violations can account for the reduced likelihood of reaching agreement that has been found in computer-mediated negotiation (e.g., Moore et al. 1999). We also found that increased seller power, in the form of increased negotiation item value, further reduced concession making by the second mover, thereby exacerbating the perils associated with individuals making the first offer and reducing the likelihood of agreement.

Within the last decade, there have been a growing number of studies concerned with the impact of communication media on negotiation (e.g., Carnvale and Isen 1986; Moore et al. 1999; Purdy et al. 2000), with many focusing on the outcome of negotiation (e.g., Purdy et al. 1998; Valley et al. 1998). However, few have examined the negotiation process along with its outcome (for an exception, see Moore et al. 1999). The general consensus of these studies is that, compared with face-to-face, computer media result in less likelihood of agreement due, for example, to constraints in the communication of social/relational information (Moore et al. 1999; Naquin and Paulson 2003). Our study provides further insight into why reaching agreement is more difficult in computer-mediated negotiation by elaborating on the underlying process as it relates to the orientation and behavior of negotiators. In general, our findings support and provide insight into the notion that media make a difference and suggest the potential value for further research into computer-mediated negotiation.

Acknowledgments

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