Collaborators and Competitors Negotiating in Profit and Costs Frames

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Abstract

The theory of cooperation and competition hypothesizes that negotiators are motivated by two general social orientations, which are based on their preference of outcome for self and others. This study looks at how collaboratively and competitively oriented individuals negotiate using an e-negotiation system. A laboratory experiment was conducted to examine the effects of framing outcomes (in terms of gains and losses) and motivational orientation (collaborative and competitive) on the negotiation process (number of offers and cooperativeness) and outcome (joint outcome and contract balance). The results show that framing affects behavior. Collaborative dyads make more offers, exhibit greater cooperativeness and reach better joint outcomes in the loss frame. Competitive dyads, on the other hand, make more offers and achieve greater outcomes in the gain frame.

Keywords: Motivational orientation, framing, laboratory experiment

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1. Introduction

Research on negotiation draws on two rich traditions, one of a motivational and the other of a cognitive perspective (Carnevale and Pruitt 1992). The motivational perspective describes negotiators as having different social motives that influence their behavior and negotiation outcome. It identifies two orientations: the *competitive orientation* which refers to negotiators seeking to maximize their own gains regardless of the cost to the other and the *collaborative orientation* describing those who try maximizing their own gains as well as those of the others'.

Collaborative and competitive orientations provide an important basis for research because they show different social motives that underline trade. The pairing of these fundamentally different orientations creates dyadic compositions that lead to different behaviors and outcomes. Overall collaborative dyads demand less, concede more and have a higher rate of agreement; while competitive dyads are more contentious, they can jostle each other to an agreement with higher joint value (De Dreu et al. 2000).

The cognitive perspective examines how people make decisions. Decision theory points to deficiencies and judgment biases resulting from mental shortcuts taken by negotiators to manage information. Based on Kahneman and Tversky's (1979) prospect theory, Neale and Bazerman (1985) describe the bias of outcome framing, which is defined as the negotiators' conception of the outcome in terms of gains or losses.

Until recently, these two perspectives of behavioral research have existed independently of each other. The integration of both perspectives, suggested by many researchers, can paint a richer picture to describe negotiation behaviors and outcomes (De Dreu and Carnevale 2003). Studies that examine social motives and outcome frames report mixed results. Carnevale et al. (1994) state that collaborative negotiators operating in a loss frame are more likely to reach higher joint earnings than those negotiating in a gain frame. The reason is that the loss frame prevents them from accepting any solution, and the resistance to concession pushes them to agreements that can be more optimal for both sides. However, Olekalns (1994; 1997) espouses that the cognitive barrier imposed by a loss frame is difficult to overcome and produces more failed negotiations even for collaborative dyads.

Research on outcome framing in negotiation has focused on different representations of outcome based on the directives of the case (Malhotra and Bazerman 2008), it has not been extended to the process where communication been negotiators are also framed. As ENS facilitates decision-making and mediates interactions between both sides, inevitable it frames outcomes during the process through information presentation. The involvement of the system in framing has only been studied for single shot evaluations of items (Stibel 2005), it has not been performed by ENS in complex, multi-issue negotiations. The result of such a study would help designers build systems to encourage or discourage concession-making dependent on the objectives of the interaction.

As ENS researchers aim to provide users with better systems to negotiate, the concern is on how the conflict is framed through the system, and how this framing of information affects the interaction between negotiators and their counterparts. More specifically, this work addresses the following question: *How are negotiators with different motivational orientation affected by*

ENS framing?

The objective is to explore and answer this question by integrating theories from both motivational and cognitive perspective, as well as relating them to the assessment of ENS at the dyadic level. A 2x2 factorial design is used in a laboratory experiment to: (1) examine the outcomes (i.e., joint earnings and earnings equity) and the process effects (i.e., number of offers, cooperativeness) of different ENS frames for different motivational orientations, and (2) contrast the difference between collaborative and competitive orientations for each of the frames.

2. Literature Review

Motivation and cognitive perspectives in negotiation research are described in this literature review to explain the theories governing these perspectives.

2.1 Motivational Orientation

Based on the theory of cooperation and competition (Deutsch 1949), the dual concern model (Blake and Mouton 1964; Pruitt and Rubin 1986) states that various motivational orientations are derived from the extent to which negotiators emphasize achieving their own or the counterpart's goal. However, research and practice suggest that negotiators typically hold either a collaborative orientation with pro-social motives that aim to create value for both sides; or a competitive orientation with pro-self motives that focus on claiming value for oneself (De Dreu et al. 2000). Reviews on motivational orientations demonstrate that:

- Contextual dimensions (i.e., the environment in which the negotiation takes place) and individual differences (i.e., the negotiator's predisposition) are antecedents to collaborative and competitive orientations (Thompson and Hastie 1990).

- The various dyadic compositions, which is derived from different orientations, provide an indication to the initial activities undertaken by the negotiators (Olekalns and Smith 1999; Olekalns and Smith 2003a; Olekalns and Smith 2003b). However, the dyadic composition is by no means the sole predictor of negotiated outcomes. The negotiation protocol (Weingart et al. 1993), technology used to mediate communication (Jain and Solomon 2000; Montoya-Weiss et al. 2001), and outcome frames play a pivotal role in promoting continuation or shift in motivationally driven activities (Olekalns 1994; Olekalns 1997; Trötschel and Gollwitzer 2007).

There have been few studies on the relationship between orientation and technology. More specifically, little is known on the effect of decision support of ENS on motivational orientation (Jain and Solomon 2000). Initial works on outcome frames and motivational orientations point to the need of integration, and more studies are required to provide tools that would relieve negotiators of their cognitive biases, while attempting to meet their social goals (De Dreu et al. 1995).

2.2 ENS Framing

In negotiation, the framing of outcome is a form of attribute framing (Levin et al. 1998), which

influences the formulation of offers, communication with the counterpart and concession-making. In prospect theory, Kahneman and Tversky (1979) describe the difference in people's evaluation of alternatives in a gain versus a loss frame. They argue that losses loom greater than gains forgone, based on which Bazerman et al. (1985) suggest that negotiators operating in a loss frame are more resistant to concession-making than those in the gain frame. Since competitors need to cooperate and collaborators must resist unfavorable concession making, each orientations require different framing to obtain superior dyadic results (Carnevale and Pruitt 1992; De Dreu et al. 2000).

The difference in framing implies that potential outcomes (offers) are evaluated based on a reference point A or B as shown in Fig. 1.
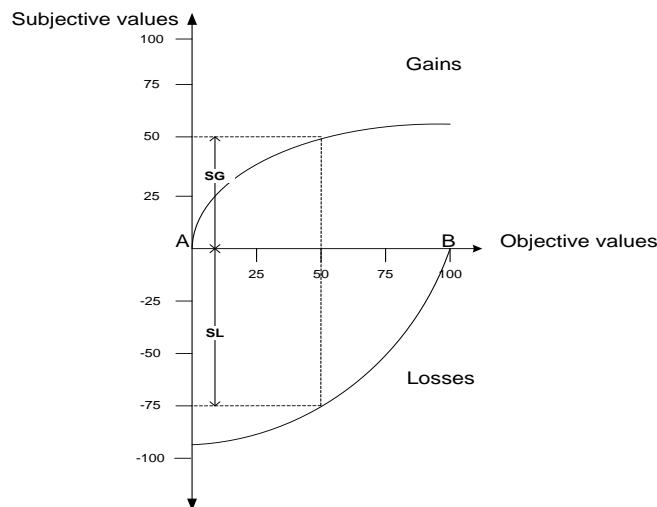

Fig. 1. Comparison of outcomes adapted from De Dreu et al. (1995)

A negotiator in the gain frame uses the worst possible offer A to asses other offers. The evaluation of consecutive offers from A to B is represented as points along a concave function (Fig. 1). A negotiator in the loss frame uses the best possible offer B to judges other offers along a convex function. An important distinction, according to prospect theory, is that, for the offers, the subjective values in the gain frame are different from those in the loss frame. For example, an offer is subjectively assessed as having a value of 50 (e.g., utility) in the gain SG, but the very same offer in the loss frame, SL, is perceived differently (i.e., SL is larger than SG).

When outcomes are presented as losses, negotiators are more demanding, concede less, arrive at fewer agreements and reach less efficient agreements than in the gain (De Dreu et al. 1995). These effects are the result of people's heighten-concern for outcome (i.e., their aversion to losses), and they may be reduced by cooperative motives or reinforced by competitive ones (Trötschel and Gollwitzer 2007).

ENS framing refers to the individual's conceptualization of outcome through the information

displayed during the process as either being gains or losses. In simple decisions, positive framing of attributes is more persuasive and leads to better evaluation of items (Levin et al. 1998). Foroughi et al. (1995) suggest many ways in which ENSs may help negotiators overcome cognitive limitation without specific insight into how a system improves the process. Furthermore, research in decision support systems directs to the importance of restricting and framing information to help users make decisions that are consistent with their goals and task.

3. Research Framework and Hypotheses

The research framework and hypotheses are formulated to investigate the impact of collaborative and competitive dyads negotiating in the gain and loss frame.

3.1 Research Framework

In Fig. 2, the research framework depicts the impact of different motivational orientations interacting with ENS frames on the process and outcome from a dyadic level. The elements characterizing the research framework are divided into treatment and dependent variables. The treatment variables are: (1) motivational orientation in terms of collaboratively or competitively oriented dyads, and (2) ENS framing in either the gain or loss frame. The dependent variables describe the influence of the treatment variables on the process and outcome.
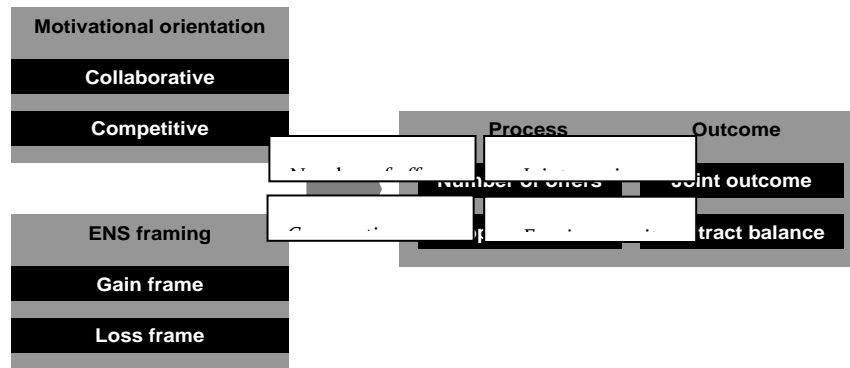

Fig. 2. Research framework

The process is examined through the quantity (number of offers) and quality (cooperativeness) of interaction by the dyad for each treatment condition. The outcome is assessed in terms of efficiency of negotiations (joint earnings) and equitable division of earnings (earning equity).

3.2 Hypotheses on Frame Comparison

The development of hypotheses is founded on the theory that negotiation success requires a mixture of competition and cooperation (Lax and Sebenius 1986). The theory suggests that competitive individuals achieve better results by considering the interest of the counterparts,

as collaborators would do. Conversely, to maximize joint profit, collaborators should not easily concede but rather hold firmly to their positions, as competitors would do. In essence, competitive negotiators benefit from adopting some collaborative behaviors and that other way around. As negotiations is about balancing competition and collaboration, the prescriptive advice is that each orientation (e.g., collaborative) needs to behave similar to the other orientation (e.g., competitive) to compensate for shortcomings associated with one's orientation.

The dual concern model argues that favorable joint earnings can be derived from both orientations as the result of: (1) collaborators who have a high level of resistance to concession making (Ben-Yoav and Pruitt 1984a; Ben-Yoav and Pruitt 1984b), or (2) competitors who cooperate by incorporating both sides' preferences (Rubin 1991; De Dreu et al. 2000). ENS framing of offers encourages consensus building in the gain frame for competitors and discourages unfavorable settlement in the loss frame for collaborators. The expectation is that competitors perform better under a gain frame, while collaborators profit from a loss frame. We hypothesize that:

> H1a: Collaborative dyads will achieve higher joint earnings in the loss than gain frame.
> H1b: Competitive dyads will obtain higher joint earnings in the gain than loss frame.
> H2a: Collaborative dyads will achieve greater earnings equity in the loss than gain frame.
> H2b: Competitive dyads will have greater earnings equity in the gain than loss frame.

In the gain frame, competitors, who express their preferences to their counterpart, make integrative offers to achieve higher joint earnings (Olekalns et al. 1996; Olekalns and Smith 1999). In the loss frame, collaborative dyads are able to dramatically create value in the latter half of negotiation by increased effort to express their preferences, while in the gain frame competitive dyads are less contentious and make more offers (Olekalns 1994; Olekalns 1997). Furthermore, ENS studies have shown that (1) an increase in the numbers of offers leads to higher efficiency and equity (Delaney et al. 1997); and (2) an increased cooperativeness encourages greater mutual benefits (Sheffield 1995). Therefore, the following hypotheses are presented:

> H3a: Collaborative dyads will make more offers in the loss than gain frame.
> H3b: Competitive dyads will make more offers in the gain than loss frame.
> H4a: Collaborative dyads will exhibit greater cooperativeness in the loss than gain frame
> H4b: Competitive dyads will exhibit greater cooperativeness in the gain than loss frame.

3.3 Hypotheses on Motivational Comparison

The next set of hypotheses contrasts the two orientations within each frame. These hypotheses aim to test the effect of ENS framing on different types dyads in order to examine whether framing biases one orientation versus another. Although research have highlighted the benefits of one type of framing over another (Bazerman et al. 1985) and the success of competitive dyads over collaborative one in the gain frame (De Dreu et al. 2000), very little is known about the difference between the two orientations in the loss frame. Adhering again to the theory of competition and cooperation, we believe that the loss frame is more likely to favor collaborators over competitors because it can help collaborators resist settling easily and drive them to more advantageous solutions. However, the loss frame can be detrimental to competitors because it can discourage consensus and increase contention. Therefore, the

following hypotheses are formulated:

> H5a: In the gain frame, competitive dyads will achieve higher joint earnings than collaborative ones.
>
> H5b: In the loss frame, collaborative dyads will obtain higher joint earnings than competitive ones.
>
> H6a: In the gain frame, competitive dyads will achieve greater earnings equity than collaborative ones.
>
> H6a: In the loss frame, collaborative dyads will achieve greater earnings equity than competitive ones.
>
> H7a: In the gain frame, competitive dyads will propose a greater number of offers than collaborative ones.
>
> H7b: In the loss frame, collaborative dyads will have more offers than competitive ones.
>
> H8a: In the gain frame, competitive dyads will make more cooperative offers than collaborative ones.
>
> H8a: In the loss frame, collaborative dyads will exhibit greater cooperativeness than competitive ones.

4.   Research Methodology

The methodology consists of specifying the manipulation of variables and the design of experiments.

4.1   Treatment Variables

Motivational orientation is derived from extrinsic means (i.e., manipulating the context through instruction) adapted from Schei and Rognes 2003 and Schei et al. 2006. The manipulation can be expressed as the following:

Let $V(x)$, where x is an offer ($x \in X$), be the earning function. The negotiators' objective depends on their orientation. The competitive negotiators want to maximize their own earnings, that is:

$$max \ V_{self}(x).$$

The collaborative negotiators want to maximize joint earnings, that is:

$$max \ \{V_{self}(x) + V_{other}(x)\}.$$

In the realm of negotiation research, the operationalization of the *EMS frames* remains mostly true to the methods of problem framing used by Kahneman and Tversky (1979), which are to present outcomes in terms of gains and losses in the problem itself.

ENS framing is an extension of outcome framing in negotiation research. Bazerman et al. (1985) started the operationalization of framing in negotiation by using different presentation of the same case (i.e., with the exception of the profit schedule and the objectives of the task) in a laboratory experiment. For the gain frame, the profit schedule was presented in positive

net profits, while the loss frame showed each option as an expense that must be deducted from a gross profit. The net profit for both frames is the same.

The Bazerman et al. (1985) case also instructed participants to either "maximize net profit" or "minimize expenses" depending on whether they were using a net profit or expense schedule. Appendix A shows an example of a profit schedule. The expense schedule is similar except that the dollar values are reversed for each issue, because these values represent costs to the negotiator. This standard of manipulating outcome frames and even the case have both been used by other researchers (e.g., Neale and Bazerman 1985; De Dreu et al. 1994; Carnevale 2007) seeking to recreate the framing effect.

Beyond presenting the earnings schedule in different frames, the ENS also mediates the process in different frames. Depending on the frame, the system (1) calculates offer packages in either gains or losses, e.g., Fig. 3a shows a screenshot for construction an offer in the loss frame using expenses (in red circle). ; (2) displays the history of offers in either gains or losses, e.g., Fig 3b illustrates the history graph in the gain frame with profits (in red circle); and (3) tracks all communication between parties. Participants are directed to communicate with each other through offer packages consisting of three issues (delivery time, discount terms and financial terms) and text-based message boxes.

| a) Offer construction in loss frame | b) History graph in gain frame |
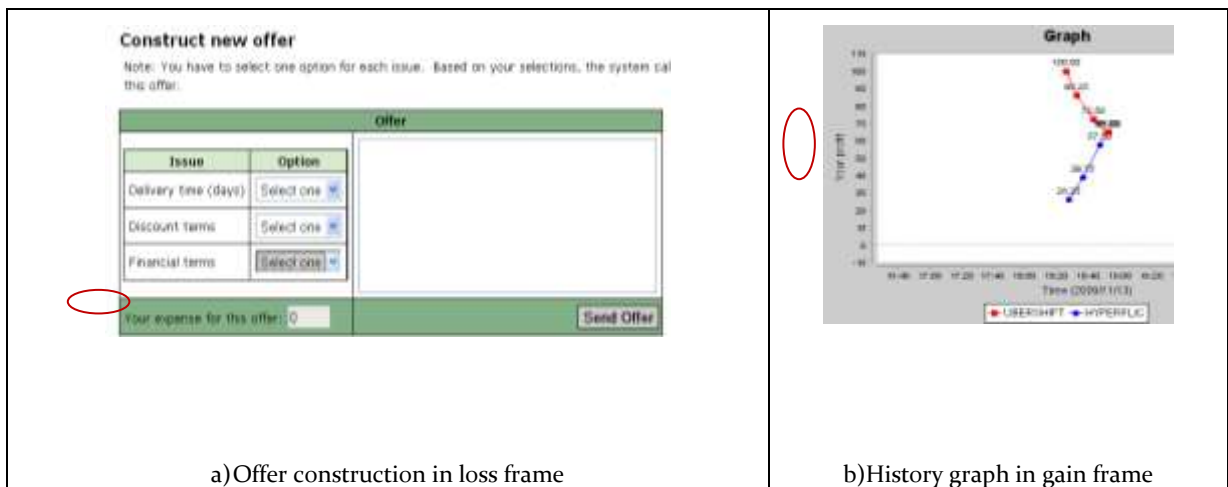
Fig. 3. Screenshot of offer construction and history graph

4.2 Dependent Variables

Dependent variables reflect the dynamic interaction between negotiators as they strive to reach an agreement. The dependent variables are measured, based on joint actions and results, in order to determine the effect of the treatment. The number of offers and cooperativeness capture the process, while joint earnings and earnings equity relate the outcomes achieved by the dyad.

The *number of offers* is a variable mostly used in ENS to show the utilization of the system by

the individuals in terms of quantity of interaction. It measures decision that negotiators make based on information that they collect through communication exchange (Lim and Benbasat 1993). It was employed by Carnevale (2007) to show the process for treatments involving different outcome frames and affective experience. The number of offers is calculated based on the sum of all offers exchanged by the dyad.

In order to determine the objective interaction between both parties, Sheffield (1995) proposed that the *cooperativeness* of the dyad, which he called relative cooperativeness, provides a quality measure of the interaction. Cooperativeness is assessed through a ratio of integrative offers over total offers. An offer is deemed integrative when it brings an increase in value to both sides, compared to the last offer proposed by the same negotiator.

The variable of *joint earnings* is a familiar variable to negotiation studies. It has been used in motivational orientation, outcome frame and ENS research to assess and compare results among different treatments. The variable is assessed by the sum of earnings achieve by the dyad from an agreement. The experiment provides negotiators with a task that has assigned values for each possible solution. This allows for a set parameter (i.e., everyone has the same values for all possible solutions) to evaluate the results of an agreement. The values assigned to each potential agreement are usually implemented in the form of a profit schedule (Bazerman et al. 1985) or preference structure (Foroughi, Perkins et al. 1995). The joint earnings are calculated by summing the values obtained by the dyad for the agreement.

The *earnings equity* is an examination of the distribution of wealth that the agreement generates. The literature review show that earnings equity has been used in the three areas on interest to this study, and it is measured by computing the absolute difference between values achieved by the two parties from the settlement. ENS studies have long argued that electronic negotiation and specifically decision aid can increase earnings equity (Foroughi et al. 1995; Delaney et al. 1997; Croson 1999; Foroughi et al. 2001).

4.3 Laboratory Setting

A laboratory experiment is adopted as the research design. The advantage is that causality may be shown by manipulating the treatment variables, which, in this case, are the ENS farming and motivational orientation, in order to observe the impact on the dependent variables (Carnevale and De Dreu 2005). This method of research is consistent with prior cognitive studies on both outcome framing and motivational orientation in negotiation presented in the literature review. The design consists of a 2X2 factor comparison of ENS frames with motivational orientation.

4.4 Negotiation Case

Bazerman et al. (1985) developed a buyer-seller case, based on three issues, to illustrate the framing of outcome from a bargaining scenario, where two parties can make tradeoffs over different profit schedules to achieve mutual benefits. This simple, well-documented case is easy to understand, but it requires much effort (in terms of cooperation and competition over the distribution of resources) to find combinations of solutions along the Pareto frontier.

The bilateral negotiation requires subjects to communicate their preferences and work together to generate a final distribution that is optimal for both sides. The two sides have different values for each issue and options, and they are not aware of the other's values.

Two of the issues are asymmetric, which implies that negotiators can concede on the issue with less value for one that is more valuable. The third issue is distributive (i.e., the lost on one side is a gain for the other). For this study, the case is an adaptation of Bazerman et al's case (1985) with changes to the roles in order to avoid buyer and seller biases (Olekalns 1994; Olekalns 1997). The participants play the role of a film producer and retailer negotiating over a distribution contract. But the most important change is the enforcement of framing by the system (i.e., in the gain frame all displays of offers are positive, but in the loss frame they are negative). An example of the case in the gain frame is presented in Appendix A.

4.5 Participants and reward

The subjects consist mainly of university students recruited from the undergraduate business program. Since they do not have prior knowledge of ENS (or to our system, Inspire), it makes them relevant to studying ENS framing, as the study is not affected by different experience levels. Furthermore, ENS are consumer-orientated systems that may serve people of different demographics, such that the finding from a single laboratory experiment is not generalizable independently of whether student subjects are used (Lynch 1999). The incentive structure, employed to ensure that the students take the experience seriously, is composed of two parts: (1) a general participation portion encourages students to present themselves for the experiment (1% of course grade), and (2) a performance portion is given to induce thoughtful engagement in the experimental activities (maximum of 1% of course grade, based on the z-score for each session).

4.6 Procedure

Before the experiment, recruitment of subjects was based on a class assignment for first and second year undergraduate students taking an introductory course to Management Information Systems. When the participants signed up for the experiment, they answered a background questionnaire to determine if any demographic biases may exist, and they selected a session that would be convenient for them. They were then sent an email two days before the session date and they were telephoned the evening before experiments to secure participation.

Prior to entering the laboratory, the subjects were greeted in an office, where they were given the consent form and a number, which prevented the facilitator from associating their name and performance. The subjects were randomly assigned to one of two laboratories (a room for each side of the negotiation). In the laboratory, they were placed at a computer logged on to the ENS. During the two hour experiment, subjects were guided by facilitators (one for each laboratory), who controlled the flow of activities and answered general questions about the ENS features and instructions.

The students were given two questionnaires. The ex-ante questionnaire, based on an adaptation of nine decomposed games developed by Van Lange et al. (1997), was used to determine their inherent orientation as a possible confounding variable. Participants were

given the negotiation case followed by a quiz measuring their understanding of the case and the objectives. A system guide was provided to expose the subjects to the features. An explanation of the experimental rules was given before subjects start negotiations. The negotiation lasted 45 minutes, and a post-questionnaire was given to measure subjective views on the ENS and negotiation.

Table 1. Experimental activities

	Activities
1	Sign up and answer demographic questions
2	Sign consent form
3	Randomly assign to two different laboratories (one for each side of the case)
4	Answer questions on their inherent orientation
5	Receive instruction on the negotiation
6	Read the case
7	Answer a quiz on the case
8	Receive explanation on the system guide
9	Negotiate for 45minutes
10	Answer post-questionnaire

4.7 Pretest

The purpose of conducting three pretests is first to determine the operationalization of the different motivational orientation through instruction given in the case, and second to establish the workflow of the experimental procedure. The pretest consisted of a quasi-field experiment that was similar to the actual one conducted in the project. It assigned participants to two groups: one of collaborators and the other of competitors. The overall results confirmed that motivational orientation can be manipulated through the objective of the case, and that the subjects' inherent disposition did not affect the manipulation.

5. Results

Due to the restricted number of computer in the laboratories, the data collection was done over sixteen sessions, four sessions per treatment. 146 students were given the competitive orientation, out of which 58 received the gain and 88 the loss frame. 128 students were given the collaborative orientation, with 60 in the gain and 68 in the loss frame. The number of participants per treatment was uneven because students were given the option to select the sessions they wanted. Since some sessions were not favorably aligned to the students' schedule, fewer students partook in these sessions than others. As the experiment was designed to encourage agreements, all dyads reached a settlement except for one involving competitors in the loss frame (it was removed from data analysis).

5.1 Control and Manipulation Check

For the confounding variables, the overall statistics showed that the 274 participants were between the first age group from 20 or years old or less and the second from 21 to 25 years old,

with more emphasis on the later. There were an equal number of men and women. No statistical significance was found for age, gender, negotiation experience, English proficiency and inherent social motive on the dependent variables across the treatment conditions.

The experiments required the manipulation of motivational orientation to produce the four treatments used to test the hypotheses. As each participant was instructed to comply with the objective of either a collaborative or competitive orientation, the participants must also answer two questions in ex-post regarding their instructed orientation. The feedback collected on these two questions was analyzed with one-way ANOVA to reveal if the manipulations were successful in generating collaborative and competitive orientations.

5.2 Descriptive Statistics

The means, standard deviations and correlations among studies variables are presented in Table 2. By and large, the dyads achieved a joint earnings of $113,110, which is better than an evenly split outcome of $100,000. The highest mean joint earnings were for competitive dyads in the gain frame ($116,720) and the lowest was for collaborative dyads in the same frame ($106,820). The mean disparity between negotiators of a same dyad, measured in terms of earnings equity, was highest for competitive dyads in the loss frame ($19,740) and lowest for collaborative dyads in the same frame ($10,930). The mean earnings equity was $15,210 for all treatments.

Table 2. Descriptive statistics

Variables	Overall mean (SD) n= 274	Motivational orientation			
		Competitive (n=146)		Collaborative (n=128)	
		Gain Frame Mean (SD) n=58	Loss Frame Mean (SD) n=88	Gain Frame Mean (SD) n=60	Loss Frame Mean (SD) n=68
Joint earnings (in $1000)	113.11(11.18)	116.72(10.14)	112.53 (9.48)	106.82(13.00)	116.32(9.95)
Earnings equity (in $1000)	15.21(18.48)	14.48(14.26)	19.74 (24.81)	14.12(17.97)	10.93(9.33)
Number of offers	12.02(7.00)	14.48(8.24)	11.45 (6.97)	8.37(5.16)	13.88(5.84)
Cooperativeness (% of integrative / total offers)	13.41(13.52)	14.66(9.62)	11.92 (10.28)	10.81(19.67)	16.56(12.95)

On average the dyads proposed 12 offers, but the most was proposed by competitive dyads in the gain frame (14 offers) and the least was by collaborative ones in the same frame (8 offers). The mean cooperativeness (i.e., percentage of integrative offers proposed over total offers) was highest for collaborative dyads in the loss frame (16.56%) and lowest for competitive ones in the same frame (10.81%).

5.3 Frame Comparison

The first set of ANOVAs is presented in Table 3 to contrasted different frames for the same orientation. For collaborative dyads, the ANOVAs showed that joint earnings were significantly better in the loss frame (p-value < 0.001) by an estimated $9,499 (8.89% increased from the gain frame), supporting H1a. However, the analysis on earnings equity depicted insignificant difference between the frames (p-value = 0.202), and it did not support H2a. The collaborative dyads proposed significantly more offers (an estimated 5.516 more offers or 65.9% more) in the loss frame than in the gain frame (p-value < 0.001), and these offers in the loss frame were more cooperative (p-value = 0.05) by an estimated mean difference of 5.757% or 0.532 factor increase from the grain frame. Regarding the process, H3a for the number of offers and H4a for cooperativeness are supported as collaborative dyads make more offers with higher cooperativeness in the loss than gain frame.

For competitive dyads, Table 3 describes the inverse findings, meaning that the gain frame fared better than the loss one. The joint earnings were shown to decrease by an estimated value of $4,194 or 3.59% in the loss frame, supporting H1b. The earnings equity was not significant (p-value = 0.146), not supporting H2b. For the process, competitive dyads significantly proposed fewer offers in the loss frame by an estimated 3.028 offers or 20.9% (p-value = 0.18), supporting H3a. However, H4d was not supported because cooperativeness was insignificantly different between the frames (p-value > 0.05).

Table 3. ANOVAs for different frames

Dependent Variable	Sum of Squares	df	F	Sig.	Estimated β	% difference from gain to loss frame
Collaborative dyads						
Joint earnings	2875.828	1	21.830	.000	9.499	8.89
Earnings equity	324.602	1	1.643	.202	ns	ns
Number of offers	969.727	1	31.679	.000	5.516	65.9
Cooperativeness	1056.450	1	3.908	.050	5.757	53.2
Competitive dyads						
Joint earnings	614.916	1	6.474	.012	-4.194	3.59
Earnings equity	967.168	1	2.138	.146	ns	ns
Number of offers	320.576	1	5.702	.018	-3.028	20.9
Cooperativeness	261.210	1	2.600	.109	ns	ns

Gain frame =0, Loss frame =1

5.4 Motivational Orientation Comparison

In order to examine the difference between the motivational orientations in each frame, two other ANOVAs were performed on the process and outcome variables. Table 4 summarizes the results. In the gain frame, competitive dyads obtained higher joint earnings than collaborative ones by a significant difference of 9.27% (p-value < 0.001), which supports H5a. The competitive dyads achieved this result by proposing more offers than collaborative dyads, over 73.1% more offers with a p-value less than 0.001, supporting H7a. However, there were no differences between earnings equity (H6a) and cooperativeness between the two orientations (H8a).

Table 4. ANOVAs for different motivational orientations

Dependent Variable	Sum of Squares	df	F	Sig.	Estimated β	% difference between collaborative and competitive dyads
Gain frame						
Joint earnings	2888.954	1	21.169	.000	9.897	9.27
Earnings equity	3.811	1	.014	.905	ns	ns

Number of offers	1103.177	1	23.505	.000	6.116	73.1
Cooperative ness	437.209	1	1.805	.182	ns	ns
Loss frame						
Joint earnings	552.482	1	5.889	.016	-3.795	3.37
Earnings equity	2977.608	1	7.723	.006	-8.810	80.6
Number of offers	226.097	1	5.349	.022	-2.428	17.5
Cooperative ness	825.927	1	6.224	.014	-4.640	28.0

Collaborative dyad =0, competitive dyad =1

In the loss frame, the collaborative dyads achieved greater joint earnings, 3.37% more (p-value = 0.016) and earnings equity, 80.6% more (p-value = 0.006) than competitive dyads. This supports both H5b for joint earnings and H6b for earnings equity. The collaborative dyads were able to obtain these outcomes over the competitive ones because they proposed more offer, 17.5% difference between the orientations, and the offers were more cooperative by 28.0%. The process hypotheses are supported for both H7b (number of offers) and H8b (cooperativeness).

A summary of the hypotheses testing is presented in Table 5.

Table 5. Summary of results

Treatment	Variables	Hypothesis	Results
Comparing frames within each motivational orientation			
Collaborative	Joint earnings	H1a: Loss > Gain	supported
	Earnings equity	H2a: Loss > Gain	not supported
	Number of offers	H3a: Loss > Gain	supported
	Cooperativeness	H4a: Loss > Gain	supported
Collaborative	Joint earnings	H1b: Gain > Loss	supported
	Earnings equity	H2b: Gain > Loss	not supported
	Number of offers	H3b: Gain > Loss	supported
	Cooperativeness	H4b: Gain > Loss	not supported
Comparing motivational orientations within each frame			
Gain frame	Joint earnings	H5a: Competitive > collaborative	supported
	Earnings equity	H6a: Competitive > collaborative	not supported
	Number of offers	H7a: Competitive > collaborative	supported
	Cooperativeness	H8a: Competitive > collaborative	not supported

Loss frame	Joint earnings	H5b: Collaborative > competitive	supported
	Earnings equity	H6b: Collaborative > competitive	supported
	Number of offers	H7b: Collaborative > competitive	supported
	Cooperativeness	H8b: Collaborative > competitive	supported

6. Discussion and Conclusion

The fundamental conjecture of this study is that different motivational orientations benefit from different framing of potential outcomes. More specifically, collaborative dyads benefit from a loss frame as it prevents them from making large unfavorable concessions. Conversely, competitive dyads profit from a gain frame, which promotes concession-making and reduces conflict escalation.

The theory underlying these differences is from Kahneman and Tversky (1979), who espouse that when outcomes are framed differently, people make different choices. This is especially prevalent for negotiators who have shown to make more concessions and accept favorable offers in the gain as opposed to the loss frame (Bazerman et al. 1985). Although De Dreu et al. (1995) advocate that potential outcomes should be presented in the gain frame to encourage consensus building, they also allude to the disadvantage of heighten concession-making for collaborators. In a series of experiments, Trötschel and Gollwitzer (2007) show that social motives interact with framing, which may have led the collaborative dyads to easily settle on inferior solutions in their experiment. The results from this laboratory study supported the interaction between ENS framing and motivational orientation. Collaborative dyads in the loss frame achieved better joint earnings than in the gain frame, supporting the argument made by Carnevale et al. (1994) and contradicting the findings from Olekalns (1994), which were based on a very small sample size. The reverse was found for competitive dyads (i.e., competitive dyads reached higher joint earnings in the gain frame), which confirmed the results from Olekalns (1997) and those from Schei et al. (2006).

Compared to the gain frame, collaborative dyads in the loss frame proposed 66% more offers and these offers were 53% more cooperative, which led them to higher joint earnings (8.89%). Reversely, competitive dyads performed better in the gain versus the loss frame. They obtained 3.59% higher joint earnings by made 21% more offers, but these offers were not more cooperative than those in the loss frame.

This study challenges the general premise on outcome framing in negotiation, which advocates the representation of potential outcomes in gains because the loss frame is viewed as an impediment to overcome through cooperation (De Dreu and McCusker 1997; O'Connor and Carnevale 1997; Bazermann et al. 2000; Trötschel and Gollwitzer 2007). The findings showed that the gain frame favors competitive dyads compared to collaborative ones. The competitive dyads achieved 9.27% higher joint earnings by proposing 73.1% more offers. However, the findings also point to the advantage of the loss frame for collaborative dyads when compared

to competitive ones. In the loss frame, collaborative dyads obtained more efficient (higher joint earnings) and equitable (better earning equity) results through proposing more and better quality offers, compared to competitive dyads. Thus, we argue that the best scenario would be to know the motivational orientation of the negotiators beforehand and then implement the appropriate framing.

The major limitation is the generalizability offered by the findings. As negotiation is a complex process that includes many stages, the case addresses only the conduct of negotiation and more specifically the exchange between integrative and distributive issues. The experiment controls for external factors (e.g., power, past history, etc) found in real-life context in order to isolate the effects of the variables of interest. Future research is needed to extend the case to different scenarios and systems.

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Appendix:

1. Case of Retailer and Producer of Movies in Gain Frame

You own an online retail store, called HYPERFLIC, selling independent films that buyers can view through streaming. You are in negotiation with UBERSHIFT, a producer of independent, European films. Both parties have settled on the industry standard of price per film, but three other issues still need to be discussed. These issues are: delivery time, discount terms and financial terms.

- *Delivery time* refers to the lag time between the release of the movie and the upload of the movie by UBERSHIFT to your server.

- *Discount terms* describe the markdown that UBERSHIFT provides you for selling the films.

- *Financial terms* center on the percentage of the price that you pay UBERSHIFT before they upload the movie to your server. The rest of the price is paid three months after you received the film.

The following table shows your *profit schedule* for the negotiation. It helps you determine what each option within an issue is worth to you.

Issues

Delivery time		Discount terms		Financial terms	
0 day	$20,000	10%	$30,000	0 %	$50,000
1 day	$17,500	9 %	$26,250	13 %	$43,750
2 day	$15,000	8 %	$22,500	25 %	$37,500
3 day	$12,500	7 %	$18,750	38 %	$31,250
4 day	$10,000	6 %	$15,000	50 %	$25,000
5 day	$7,500	5 %	$11,250	63 %	$18,750
6 day	$5,000	4 %	$7,500	75 %	$12,500
7 day	$2,500	3 %	$3,750	88 %	$6,250
8 day	$0	2 %	$0	0%	$0

This profit schedule applies only to you. UBERSHIFT uses a different profit schedule.

For example: based on the profit schedule, if you and your counterpart agree to the delivery time of 7 days, a discount term of 6% and a financial term of 13%, then your total profit is $61,250.

		Options	Profit
	Delivery time	7 days	$2,500
Issues	Discount terms	6 %	$15,000
	Financial terms	13%	$43,750
Your total profit			$61,250

Negotiation objective *(depending on the orientation assigned)*:

Collaborators UBERSHIFT is an important producer that has made (and will make) many lucrative films, and therefore, the welfare of your counterpart is important to you. Your goal is to try to earn as much profit for you and for UBERSHIFT as possible.

Competitors UBERSHIFT is new producer that may (or may not) stay in business, and therefore, you care only about your gains. Your goal is try to earn as much profit for you as possible.