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Endowment Effect in negotiations: group versus individual decision-making

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Abstract The study's two aims are: (a) to investigate whether groups, as compared to individuals, show a different degree of Endowment Effect (EE) during the negotiating of intangible assets, such as leisure time and (b) to gain some insight into the underlying mechanism behind groups' decision-making processes. A total of 138 graduate students were randomly assigned to 35 groups of 3 members each; and 33 were randomly labeled as "individuals." The study simulated two scenarios in which the students, both individuals and groups, had to decide what their demands from the university authorities were—once as "sellers" and another time as "buyers" in regard to their own leisure time. The findings indicate the presence of an Endowment Effect (EE) in both individuals and groups. However, groups significantly amplified the Endowment Effect in comparison to individuals. The mechanism which best explains why groups tend to amplify negotiating decisions was found to be the "Majority Rule," but the "leader" also influences such amplification.

Keywords Endowment Effect · Negotiations · Groups · Polarization · Majority Rule

1 Introduction

Imagine a scenario in which graduate students studying for their Master's degree negotiate with university authorities in regard to their curriculum. At the beginning of the negotiation a status quo exists, as their curriculum includes a fixed number of elective courses and two seminars, which the students must complete in order to qualify for their Master's degree. A seminar is considered much more demanding than

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an elective course, especially in terms of the student's remaining leisure time. On the one hand, if the university authorities wish to negotiate a change in the status quo by *adding* an additional seminar (a third one) to the curriculum, in exchange for reducing the number of elective courses, the students, in effect, become "sellers" of their own leisure time. On the other hand, if the university authorities wish to negotiate a change by *dropping* one seminar in exchange for additional elective courses, the students then become "buyers," in terms of buying more leisure time. This scenario raises several interesting questions: How many elective courses will each student demand to be dropped from his/her curriculum when a seminar is *added*? Will he/she accept *adding* the same number of elective courses (previously demanded to be dropped) when a seminar is dropped from the curriculum?

Now imagine that a representative group of students conduct the negotiation instead of each individual student. Would the group of students conduct negotiations differently than an individual student? Would a group be more or less demanding than individuals in negotiating their leisure time (i.e., number of elective courses in exchange for a seminar)?

Rational theories assume that in negotiation, under complete certainty, the "buying" and "selling" prices of the same object should be symmetrical, since ownership of an object should not affect its valuation. However, according to the Endowment Effect (EE), ownership of an object increases its value. Sell demands made by owners tend to be significantly higher than expected by buyers. The EE, by inducing high demands, can be an obstacle when negotiators attempt to reach a settlement. This is not necessarily so, however, when the negotiator is a group. On the one hand, groups' overpricing induced by the EE might result in severe social welfare losses (Glöckner et al. 2009). On the other hand, groups' moderating the EE impact as compared to individuals could lead to a higher probability of reaching an agreement.

The aim of this study is to examine and compare the EE in and between groups and individuals. In other words, this study examines which type of negotiator—groups or individuals—has a better probability to moderate demands in negotiation, thus making a settlement more feasible. In addition, in order to get some insight into the procedure that motivates groups' negotiation decisions, the research also focuses on the underlying mechanisms that motivate groups deliberating negotiation decisions.

2 Theory and hypotheses

In the following sections, we will discuss three main subjects:

(1) The Endowment Effect and intangible objects. (2) Individuals versus groups and the Endowment Effect in negotiation. (3) The underlying mechanism of group decisions.

2.1 The Endowment Effect and intangible objects

The Endowment Effect (EE) has attracted much attention in the literature, due to its implications in a wide variety of fields, such as: economic analysis, decision theory,

and negotiation behavior. According to the Endowment Effect, object possessors, when negotiating, often bring overpriced demands to the negotiation table (Thompson 2001; Kahneman et al. 1990). One way to explain the EE in negotiations is according to the Prospect Theory (Kahneman and Tversky 1979), which indicates that negotiators' perception of their outcome as either gain or loss may affect their demands, thus affecting the EE as well. Identical gains and losses have different meanings for the negotiators, since losses usually loom larger than gains.

Accordingly, when negotiators sell their own objects they may perceive their outcome as a *loss* (Bottom 1998). Thus, to compensate for their feeling of loss, they raise the negotiation risk by quoting a price that they themselves would not be willing to pay if they were the "buyers" (Knetsch and Sinden 1984; Knetsch 1989; Kahneman et al. 1990; Kahneman and Knetsch 1992; Ortona and Scacciati 1992; Hoorens et al. 1999; Van Boven et al. 2003; Galin et al. 2006). This may result in a negotiation impasse.

Experiments examining the EE usually use tangible objects, such as mugs, chocolates, lottery tickets, or university tuition fees (Glöckner et al. 2009; Yaniv 2011; Thompson 2001; Kahneman et al. 1990). However, some recent studies have demonstrated that the sense of ownership that influences EE does not relate solely to material objects, but also to intangible objects. For example, Galin et al. (2006) found that EE also exists in regard to negotiations over intangible assets, such as intellectual assets and leisure time. Intangible objects were also found to induce EE in negotiation in the studies of Gimpel (2007) and Galin (2009). The use of intangible objects in studying the EE enlarges and enriches our understanding of the subject, as well as its impact on a great variety of real life negotiations, such as negotiating over working time, leisure time, and procedures.

Since leisure time is an intangible asset whose importance and value has been steadily increasing over the last decades, its loss may induce EE. Negotiators may value the loss of their own leisure time highly—even unreasonably so—merely because it is their own. Taking this reasoning into account, Ortona and Scacciati (1992) examined employees' responses to exchanging working time for salary increases. They found that subjects who "sold" two hours of their leisure time demanded a salary increase that was ten times bigger than what subjects "buying" the same two hours of leisure time were willing to pay. Another example is the study by Hoorens et al. 1999, which examined individuals' subjective value of time. They found that participants valued their own time to do a variety of chores much more than they did when "buying" someone else's time to do the very same chores. This effect, which occurred across different subject populations and chores, supports the existence of a strong EE regarding both a high valuation of "owned" leisure time and high reimbursement demands for the loss of such time.

The current study attempts to investigate whether the EE plays a role in students' decision-making processes regarding their remaining leisure time, after investing in academic chores, and whether groups of students intensify or mitigate these individual decisions. We expected that students, both individuals and groups, would react differently to the "loss" of a certain amount of leisure time, as compared to "gaining" the same amount of leisure time.

Hence, in accordance with the above theories and various empirical findings, we hypothesize as follows:

(H1) The addition of a (third) seminar (which is highly time consuming) by the university, in exchange for dropping elective courses, will cause students, both individuals and in groups—as sellers of a certain amount of their own leisure time—to demand that the university drop a higher number of elective courses than they themselves would be willing to give up—as buyers of leisure time—when negotiating for the dropping of one seminar.

2.2 Individuals versus groups and the Endowment Effect in negotiation

In most previous studies, the EE has mainly been studied in relation to individual owners rather than groups (Kahneman and Tversky 1979; Knetsch and Sinden 1984; Van Boven et al. 2003; Belk 1988; De Dreu et al. 1994; Kahneman et al. 1990; Kahneman and Knetsch 1992; Knetsch 1989; Reb and Connolly 2007). However, many negotiations involve negotiating groups rather than negotiating individuals. As a matter of fact, negotiating groups govern our lives in many instances, whether negotiating for peace between nations, between firms for business contracts, between unions and governments for industrial peace, or between universities and students for tutorial fees or curriculum structure. Therefore, further insight into groups versus individuals in negotiating situations is of high theoretical and practical importance (Yaniv 2011).

While there is ample research available on group dynamics and group behavior (including today's popular Facebook and Twitter), there are relatively few empirical studies which relate directly, or even indirectly, to group versus individual decision-making behavior with a focus on the EE in negotiations. Two important recent studies are those of Yaniv (2011) and Glöckner et al. (2009). Glöckner et al. addressed the question of how virtual groups (where each member has to make a separate decision, but where all decisions influence the other members) evaluate and price objects with uncertain payoffs (such as lottery tickets). They found the following: (a) the mere group effect reduces the EE by approximately 50% compared to individuals; (b) in virtual group situations, with a strategic incentive to overprice, the EE completely fades away; (c) as compared to the expected value of uncertain objects, there is a tendency in groups to overprice due to both the EE and strategic effect; (d) strategic incentives tend to create overpricing in group situations; and (e) individual participants' valuation of uncertain objects was influenced only by the EE, rather than by the strategic and group effects. Thus, they conclude by arguing that eliminating the strategic incentive in group situations would serve to strengthen the EE, which would lead to groups' overpricing. Unlike Glöckner et al., who investigated the impact of virtual groups as compared to individuals on the EE, this study focuses on the impact of actual groups on the EE, as compared to individuals.

Yaniv's study addressed the question of the quality of groups' judgments and decisions as compared to those of individuals. Individuals were asked to indicate their preferences between risk-free (gain) and risky (loss) options. Thereafter, individuals were asked to reach a decision as a group, in two kinds of groups—homogeneous and heterogeneous. The findings indicate that in comparison to individuals in homogeneous groups, group judgments were more polarized and more extreme, compared to individual judgments. However, this was not the case in heterogeneous groups.

Yaniv (2011) study supports, albeit only partially (only regarding homogenous groups), one prevalent approach to group judgment over the last few decades. According to this approach, groups polarize individual judgment bias. According to Schopler et al. (1994), groups tend to be more competitive and less cooperative than individuals.

According to Morgan and Tindale (2002), groups are more competitive than individuals in bargaining tasks, and continue to show polarization even under cooperative conditions. Bornstein and Yaniv (1998), by comparing the "Ultimatum Game," played by individuals as compared to groups, found that groups offered less than individuals and were willing to accept less than individuals. In either case, groups behave in a more extreme way than individuals. Kugler et al. (2007) found that groups are less trusting than individuals in the "Trust Game." Numerous studies have shown that group polarization is expected when group members share the same bias prior to getting together as a group. "Like-minded" individuals, when gathered together in a group, display group polarization (Myers and Lamm 1976; Yaniv 2011). Paese et al. (1993) found that decisions made by a group comprised risk-seeking individuals tended to increase risk seeking, while decisions made by a group of risk-averse individuals tended to increase risk aversion. Luhan et al. (2009) observed how individual decisions in the "Dictator Game" become more selfish, more competitive, and less trusting in a group decision context. Hence, group polarization is present, in one way or the other, in many studies. Therefore, group polarization is also expected to increase the EE bias of groups. We expect EE to be more extreme in regard to groups as compared to individuals.

In accordance with the above theories and the various empirical findings, we hypothesize the following:

(H2) The reimbursement requested by groups for the addition of a seminar (less leisure time) will be higher (overpriced) than the reimbursement requested by the individual students for the addition of a seminar. Moreover, the reimbursement that a group would be willing to renounce for dropping a seminar (more leisure time), would be lower than the reimbursement individual students would be willing to renounce for dropping a seminar, i.e., group decisions would be polarized in comparison to individual decisions.

2.3 The underlying mechanism of group decisions

There are several explanations for group decision-making behavior. One relevant explanation is summarized by *"Comparison Theory"*, which argues that in order to achieve group acceptance people take a position similar to other group members (Isenberg 1986).

The "Social Support for Self-interest Theory" suggests a similar explanation. Schopler and Insko (1992) claim that group members provide support for one another in exchange for acting in an intergroup-oriented way. Accordingly, in Thompson et al. (1996) study the effectiveness of groups and individuals were compared in both integrative and distributive negotiations. They found that group negotiation increases the probability of reaching an integrative agreement, because the individual members may not impose settlement without the consent of the other members. The group

mechanism that enabled the reaching of an integrative agreement can also be explained by the accumulation of greater human resources in groups (such as knowledge and expertise), which on *average* seems to reduce group bias. Some support for various implications of *The "Social Support for Self-interest Theory"* can also be found in studies that refer to individual preferences in a group, as the mean of the individual preferences (Myers and Lamm 1976).

It seems that both the *"Comparison Theory"* and the *"Social Support for Self-interest Theory"* indicate that groups' underlying mechanism for achieving negotiation decisions is through the mean of all members' reference points, which may lead to consensus.

Davis (1996) attempted to explain group decision-making according to the "*Social Judgment Scheme"* (SJS). The SJS model maintains that in-group popular preferences receive higher weights, while unpopular preferences receive lower weights (Burnstein and Vinokur 1977). Kerr et al. (1996) argued that the *"majority rules*" counts—i.e., relatively large factions of the group have a disproportionate influence over the entire group's judgmental decision. The consensus among the majority of group members tends to define the "correctness" of the group solution (Tindale et al. 2001). Hence, if the initial individual bias is strong, the group bias will be even stronger (Kerr et al. 1996). Thus, it seems that both the *SJS* and the argument by Kerr et al. indicate that groups' underlying mechanism for achieving negotiation decision is the majority rule.

"Leadership theories" offer another possible mechanism explaining group decision-making. According to "*leadership theories"* group decisions tend to shift significantly toward the suggestions of the most "powerful" group member. If this leader proposes extreme suggestions, the group's direction will shift toward making extreme decisions.

All the above theories and empirical findings seem to be plausible. However, since none of these theories and empirical findings directly relate to groups' EE in negotiation situations, we decided to investigate how our groups would reach their decision, and to what extent this decision was influenced by the EE. Upon reviewing the literature, although it was not directly relevant to the EE, the *"majority rule"* mechanism appeared to be the most promising in predicting group decisions.

Therefore, we hypothesize as follows:

(H3) The "*Majority Rule"* is the mechanism by which the group will polarize the individual EE.

3 The study

3.1 The sample

A total of 138 graduate students, all of whom were students in a research track program, participated in the study. Their curriculum included two seminars and a fixed number of elective courses, which they had to complete in order to qualify for their Master's degree. A total of 105 students were randomly assigned to 35 groups of 3 members each. The decision of having no more than 3 members in a group was made in an attempt to avoid in-group coordination problems. It is important to emphasize that all

group members were randomly chosen in order to avoid the "like-minded" individuals' tendency which, according to prior studies, was the cause of group polarization. All 35 groups were separated from one another and received instruction about the simulation by the researchers.

The other 33 students were designated as "individuals." Their preferences were compared to the group preferences. They were also seated separately from each other and were likewise instructed by the researchers about the simulation.

3.2 Procedure

All participants were informed about the context of the negotiation research they would be taking part in—a simulation of negotiations with the university authorities. None of the participants had previous knowledge of the EE or other behavioral negotiation theories (they had never participated in a negotiations course). Students participating as individuals and those in the three-student groups were all requested to simulate a negotiation with the university authorities: a trade-off of elective courses in exchange for a seminar and vice versa. All participants, both groups and individuals, were told that the aim of the research was to collect data for a negotiation study. Since they were all students in a research track program they willingly participated in the study and took the simulation seriously. All participants were ensured receipt of the study report upon request; no other incentives were offered.

Both individuals and groups were personally handed a short questionnaire by the researchers, with instructions to indicate their response to each question. Students were informed that the questionnaire they were about to complete was anonymous and that all collected information would be used for research purposes only. There was no time limit in regard to answering the questions. Students who answered the questionnaire as individuals could not participate in any group, and vice versa. The 35 groups were instructed to discuss the questions in order to make a collective decision. No instructions were given as to how they should reach their decisions.

All 33 individuals, as well as the 35 three—member groups, received two hypothetical offers for a trade-off between a seminar and elective courses, from the university authorities, as follows:

(a) How many elective courses would you demand the university authorities to *drop from* your curriculum, if an additional third seminar were added to your curriculum?
(b) How many elective courses would you be willing to *add* to your curriculum, if one of the two required seminars were dropped?

The first question indicates a loss situation for the students, as the addition of a third seminar would decrease their leisure time. The second question indicates a gain situation, as the dropping of one seminar from their curriculum would increase their leisure time. According to the EE, we predict that a loss situation would yield high compensation demands, whereas a gain situation would yield relatively low reimbursement offers.

On the basis of previous studies (Galin et al. 2006; Galin 2009), we were quite aware of the sequence affect on the EE. We already knew that a change in the question

Table 1 Individual versus group negotiations—means and endowment

Proposal	Individual reactions (number of elective courses)			Group reactions (number of elective courses)		
	M	SD	*N*	M	SD	*N*
Adding a seminar	−2.58	0.75	33	−3.00	0.77	35
Dropping a seminar	+1.97	0.68	33	+1.46	0.61	35
Endowment	0.75	0.61	33	1.54	0.89	35

sequence would either increase or decrease the EE. The shift from losing to gaining is supposed to decrease the EE, whereas the shift from gaining to losing is supposed to amplify the EE. We chose the "loss-gain" leisure time sequence, which in this study may lead to a decreased EE level. However, while designing this experiment we were interested in this sequence, in order to reveal whether even in a sequence which reduces the EE, the EE exists in negotiating individuals and is further amplified in groups.

The students were instructed to state the "exchange rate" for each of the two questions. It was understood that the stated exchange rate, i.e., the number of elective courses to be added or dropped, is the absolute minimum or maximum, beyond which they, as negotiators, would rather not make any deal at all. In other words, this would be their "reservation price."

Theories and empirical findings as described in Sect. 2.3 yielded three main underlying mechanisms by which groups can reach collective decisions. Only group members were asked to indicate how they had reached their group decisions as follows:

How would you describe the way in which your group reached its decision?

* By calculating the mean of all members' opinions.
* According to the majority decision.
* By taking the decision made by one of the group members.

3.3 Results

Table 1 depicts the means for both negotiation options (adding/dropping a seminar from the curriculum) by individual students and groups.

The results supported our H1and H2 hypotheses. A significant gap was found between adding a seminar (losing "owned" leisure time) and dropping a seminar (gaining leisure time) in both individual and group results. The t test employed for the difference between adding a seminar and dropping a seminar yielded statistically significant results: in regard to individuals, $t(32) = 4.66$, $p < 0.01$, while regarding groups, $t(34) = 10.31$, $p < 0.01$. In other words, the EE is present in both individuals and groups as proposed in H1.

The data shown in Table 1 also supports our H2 hypothesis; namely, the significant polarization of the EE in groups, as compared to individuals. The average EE for individuals was found to be 0.75, whereas the average EE for groups was found to

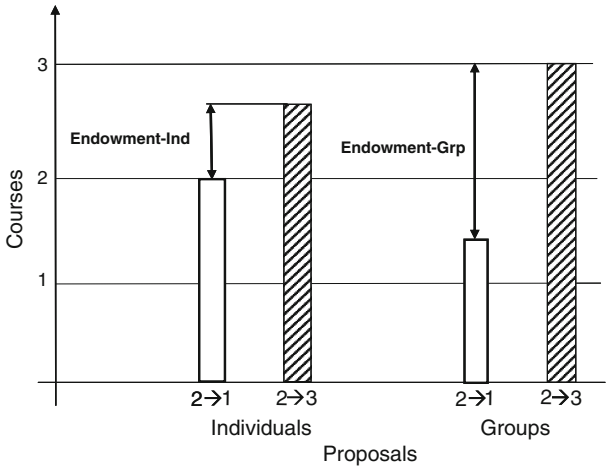

Fig. 1 An illustration of EE size in groups and individuals

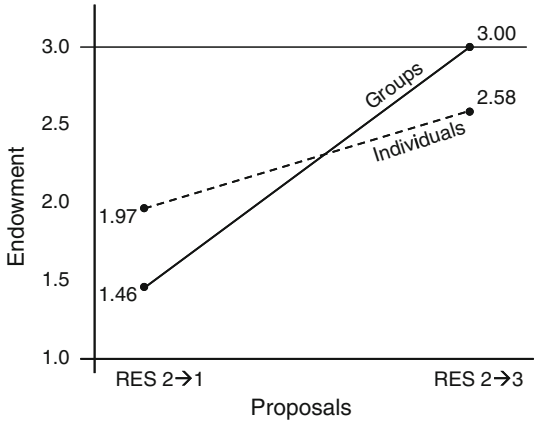

Fig. 2 Interaction between types of participants (individuals and groups) and the Endowment Effect—ANOVA results. *Note* $F(1.66) = 22.1$, $p < 0.001$. *RES* Research results

be 1.54—more than double. A graphical illustration of the EE size in groups and individuals is presented in Fig. 1.

To further explore these findings, we conducted a two-way (between and within) mixed Analysis of Variance, with the EE as the dependent variable. The ANOVA yielded a disordinal interaction. This disordinal interaction of the EE according to participant's type (individual or group) was found to be highly significant—$F(1.66) = 22.1$, $p < 0.0001$ (see Fig. 2).

Upon examining the decision processes within the groups (H3), we found that no one mentioned a decision that had been reached by calculating the mean decisions of the group members. The results of the majority decision, the "Majority Rule," and the decision according to one group member are presented in Table 2.

Moreover, a significant gap was found between adding a seminar, i.e., losing leisure time, and dropping a seminar, i.e., gaining leisure time, in both the "Majority Rule" mode of group decision-making and the "single group member" mode of group

Table 2 The Endowment Effect in groups, according to the decision process

Decision process	'Majority Rule'			'One Member'		
	Mean	SD	*N*	Mean	SD	*N*
Adding a seminar	3.33	0.59	18	2.65	0.79	17
Dropping a seminar	1.61	0.50	18	1.29	0.69	17
Net Endowment	1.72	0.89	18	1.36	0.86	17

decision-making. The t test employed for the difference between adding a seminar, i.e., losing "owned" leisure time, and dropping a seminar, gaining leisure time, yielded significant results for the majority decision, $t(17) = 8.17$, $p < 0.01$, and for the decision made under the influence of one group member, $t(16) = 6.47$, $p < 0.01$). An Analysis of Variance yielded a significant difference between these modes of decision-making, i.e., between "Majority Rule" and one member's decision—$F(1.33) = 9.72$, $p < 0.004$. Apparently, the "Majority Rule" mode of decision-making has some more impact on the EE in groups than the "one member" decision.

4 Concluding discussion

According to traditional economic theory, ownership of an object or a sense of ownership should not affect its valuation. However, according to the EE, ownership of a tangible object or even an intangible object or asset (such as time) increases the value of the object/asset. Accordingly, sellers' demands made by owners tend to be significantly higher than expected by buyers. These differences exist far beyond "buy low—sell high" logic and are equally insufficiently explained by micro-economic theory (De Dreu et al. 1994; Kahneman and Knetsch 1992; Bazerman et al. 1985). It is worth mentioning that investigating the EE regarding intangible assets enlarges and enriches previous insight into the influence of EE in negotiation situations common to everyday life situations.

As the EE seems to play a key role in many negotiation decisions and may result in an impasse, it is important to better understand its moderators. Our H1 and H2 hypotheses predicted that possession of intangible assets, such as leisure time, induces the EE in both negotiating individuals and groups. Moreover, a stronger EE bias exists in negotiating groups than in negotiating individuals. Both hypotheses are supported by the study findings. However, since the study scenarios focused on the negotiation process, the disparity found between the two "prices" (the number of courses to be dropped, and the number of courses to be added), it is possible to argue that it could also be interpreted according to rational economic theory. According to this theory, the findings can be interpreted not as an Endowment Effect, but rather as a negotiation strategy, depending on the competing parties' positions, i.e., what they are asking for (WTA—willingness to accept) and what they are willing to give up (WTP—willingness to pay). This logic simply depicts the common conception that buyers would prefer to buy at low prices and sell at high prices (WTA—WTP disparity). While we cannot completely disqualify this rationale, we are convinced that the discrepancy

between the two exchange rates is due to the EE. As we mentioned before, rational theories assume that, in negotiation, the "buying" and "selling" values of the same asset should be symmetrical and the mere fact of ownership should not affect its valuation. However, according to the EE, the "buying" and "selling" prices of the same asset in negotiation are not symmetrical, as the ownership of an asset increases its value. Since the addition of a seminar is supposed to reduce the student's owned leisure time, the students who become "sellers" of their own leisure time demand a higher price for selling it than what they are willing to pay when "buying" it.

It can be also argued that in our case the students are not buying and selling exactly the same intangible asset. In one case, students sell leisure time by shifting from 2 to 3 seminars, while in the other case they buy leisure time by shifting from 2 to 1 seminar. However, in the students' eyes, one seminar is equivalent to one seminar, whether it is added or dropped from the standard curriculum, and regardless of whether it is for buying or selling purposes. This conception does not change when students sell or buy a seminar (leisure time). It is noteworthy that in a previous study (Galin et al. 2006) an evaluating group of students confirmed that a seminar is indeed considered more demanding than an elective course, and verified the existence of a gap between the value associated with the addition or dropping of a seminar in exchange for an elective course.

Group polarization could be interpreted as the result of group homogeneity. In this sense, polarization is expected when group members share the same bias prior to getting together as a group. However, the 105 graduate students were assigned to 35 groups randomly, without checking their previous attitude. Except for being graduate students in a research track, it is highly unlikely that they were all similar-minded and displayed group members' homogeneity. If we wished to examine the EE difference between homogeneous and heterogeneous groups, we should have framed the groups as Yaniv (2011) did. Since the groups were not framed as "like-minded" groups; obviously, there was another mechanism that enhanced the EE in these groups.

Examining the groups' decision processes, we found that the "Majority Rule" and the influence of the "leader's" decision were very influential mechanisms by which the EE bias was polarized. However, the "Majority Rule" was somewhat more influential. It is also noteworthy that our findings somewhat contradict the argument that groups engage in more rational and accurate decision-making, due to an accumulation of individual judgments in the group. Our findings indicate that group biases (such as the EE bias) may be amplified in group decision-making. An alternative explanation is that groups may become more strategic-minded. Individuals may become "smarter" when they are part of a group, acknowledging that "posing" a large EE may be a good strategy to obtain a "better deal."

This study was designed to examine the impact of EE on the group negotiation process compared to negotiating individuals. It was not designed to take the next step and examine negotiation results, such as integrative or distributive agreement. The question of whether *endowed* groups are more likely to reach an impasse or distributive agreement as compared to individuals can only be assumed and actually requires further study. However, our findings regarding the polarization of the EE when it comes to groups' demands bear important practical implications for conducting

negotiations. The EE may present a real difficulty during the negotiation process by raising the "Price," in expectation of an unreasonable return. Since groups are inclined to polarization, negotiations among individuals may moderate this difficulty to reaching an agreement, and thus be preferable to negotiations with groups.

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