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## The influence of need for closure on expectations about and outcomes of negotiations

**Abstract:** *Need for closure is a construct that describes a motivational tendency to quickly select and prioritize information in the environment. Such tendencies can affect the process of negotiations, and so the quality of their outcome. The rigidity that accompanies high need for closure can lead to less openness to proposals that benefit one's partner, and to solutions that are less optimal. We conducted a study in which 34 pairs of individuals negotiated. Pairs were matched in terms of need for closure (high vs. low) and gender. We found that need for closure affected subjective evaluations of certain aspects of the negotiation process. Participants with low need for closure were more likely to indicate that they and their partners sought win-win solutions during the negotiation. This led to a greater sense of process fairness for the negotiation. These results can be taken into consideration when teaching negotiations, and when planning real-life negotiations.*

**Key words:** *negotiations, need for closure, negotiation process, negotiation outcome*

### The negotiation process

Negotiations are a crucial element of human social functioning. They allow us to resolve conflicts of interest, but they also allow us to achieve goals that are impossible to achieve as individuals (Lewicki, Barry, & Saunders, 2009). If negotiations are not successful, either due to lack of final agreement, or a suboptimal agreement—one that does not maximize both parties' profits—the costs can be very high (Malhotra & Bazerman, 2007; Thompson, 2005). Understanding the mechanisms guiding negotiations is therefore important in any study of human behavior (Bazerman & Neale, 1994; Malhotra & Bazerman, 2007). An analysis of how negotiations occur is relevant in many fields: economic, law, psychology, and sociology (de Dreu, Beersma, Steinel, & Kleef, 2007).

Many factors influence the outcome of negotiations (for reviews, see, e.g.,: Bazerman, Curhan, Moore, & Valley, 2000; de Dreu et al., 2007; Thompson, 1990; Vetschera, 2013). One of them is the negotiators' perceptions of the negotiation situation (Bazerman et al., 2000; Bazerman & Neale, 1994; Kahneman & Tversky, 1973; Tversky & Kahneman, 1974, 1981). How we perceive the negotiation

situation, our negotiation partner, or the proposed solutions, is affected by motivational and cognitive biases. These biases lead to errors in judgment and irrational behavior that could impede progress toward an optimal resolution (Bazerman & Neale, 1994; Malhotra & Bazerman, 2007). The quality of a negotiation's outcome, the degree to which the interests of all parties are fulfilled, will depend on how the negotiation proceeds. The factors that adversely affect this process are so numerous that, in fact, coming to suboptimal agreements, or a lack of agreement at all, are the norm, rather than the exception.

A particularly important and frequent error in reasoning that affects the outcome of negotiations is the "fixed pie" assumption – that there is a finite amount of goods/benefits to be negotiated, and therefore one party's gain is necessarily the other party's loss (de Dreu, Koole, & Steinel, 2000; de Dreu, Weingart, & Kwon, 2000; Harinck, de Dreu, & Van Vianen, 2000; Różycka & Wojciszke, 2009; Thompson & Hastie, 1990). Often in negotiations, it is possible to "enlarge" the pie, integrating both parties' interests to attain a win-win resolution (Fisher & Ury, 2011). However, in order to come to such integrated solutions,

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parties must reveal their priorities. In each negotiation, parties are faced with a dilemma about how much, and how honestly to share with the other (Lax & Sebenius, 1987). On the one hand, revealing one's real interests, according to negotiation theory, makes it more likely that an integrated (win-win) solution can be reached (Fisher & Ury, 2011). On the other hand, revealing too much puts one at risk of a non-cooperative response from the other party, who might take advantage of this extra knowledge (Lax & Sebenius, 1987; Lewicki, Barry, & Saunders, 2009).

One factor that affects the amount of information that is shared, and thus the outcome of negotiations, is personality (Barry, Friedman, & Smith, 1998; Elfenbein, Curhan, Eisenkraft, Shirako, & Baccaro, 2008; Ma & Jaeger, 2005; Rubin & Brown, 1975; Tibon, 2000). Although these connections are weak and not always reliable (Ross & Nisbett, 1991), it is possible that individual differences affect who enters into negotiations, and how they negotiate, having an indirect effect on the outcome (Thompson, 1990). For example, self-efficacy, self-confidence, and sensitivity can affect a negotiator's behavior (Elfenbein et al., 2008). Individual differences in cognitive, affective, and motivational processes can thus directly affect how negotiations transpire (Jochemczyk & Nowak, 2009). One individual difference variable that might affect the process of negotiations, and thus the outcome, is need for cognitive closure.

### Need for cognitive closure

Need for cognitive closure is a construct explaining differences in how individuals acquire knowledge in order to avoid a sense of uncertainty (Webster & Kruglanski, 1994). This trait determines which information will be integrated into an individual's knowledge system, and how this will occur (Bukowski, Sędek, Kossowska, & Trejtowicz, 2012). Research has demonstrated that need for closure has an important influence on decision making (de Dreu, Koole, & Oldersma, 1999), judgment, (Chirumbolo, Areni, & Sensales, 2004; Houghton & Grewal, 2000), and affect (Grada, Kruglanski, Mannetti & Pierro, 1999; Mannetti, Pierro & Kruglanski, 2007).

According to Kruglanski and Webster (1996), acquiring knowledge occurs in two steps: seizing and freezing. The first step determines which information in the environment the individual will attend to, or "seize" on. A given datum will be incorporated into the individual's knowledge system if the individual ceases information search after encountering it—that is, "freezes" on it (Roets, Van Hiel, & Cornelis, 2006).

Individuals with a high need for closure tend to seize and freeze on information more quickly than do those with a low need for closure (Kossowska, 2005, 2007). This is because they prefer situations that are unambiguous and clear. Once they encounter information and incorporate it into their knowledge systems, it is likely to stay there for a long time. This is a simple system that allows for easy navigation and quick decision-making, which is useful in situations that are inherently complex and a quick solution

is preferred. The disadvantage of such a system is that it can be quite rigid, which impedes adaptation to changing circumstances.

### Need for closure in negotiations

In negotiations, a "seize and freeze" approach can hinder reaching an optimal agreement because reaching satisfactory solutions typically requires creating many iterations of potential solutions before a final agreement is reached (de Dreu, 2003). In such conditions, adapting to new information, forgoing some goals in the service of others, generating new proposals is the key to reaching a mutually satisfying outcome. Reaching win-win solutions will be particularly difficult, because such solutions require constant adaptation to the other party's expressed needs and interests.

High need for closure, because it involves "seizing" on information that is encountered early, makes an individual more vulnerable to the primacy effect (Kossowska, 2012). Thus, individuals with high need for closure are more likely to be affected by first impressions (Curhan & Pentland, 2007). It is possible that superficial information, gleaned early in the negotiation, about the other party or about the negotiated issue, will be retained, rather than amended. This can lead to an oversimplified or inappropriate evaluation of the negotiation partner or issue.

Moreover, because of their tendency to "freeze" on information, individuals with a high need for closure often ignore information that conflicts with their current state of knowledge in order to reduce uncertainty (Kruglanski, Dechesne, Orehek, & Pierro, 2009). These individuals are less likely to make concessions than are people with a low need for closure. If new, conflicting information were taken into consideration, cognitive resources would have to be expended in order to rebuild existing knowledge structures. People with a high need for closure are likely to retain known, familiar knowledge schemas, in order to save cognitive resources (de Dreu et al., 1999). As aforementioned, this favors rapid decision-making, but can be problematic when unexpected information appears. Then, high need for closure makes it more likely that negotiators will not come to an agreement at all, because they have set unrealistic points of aspiration and resist change (de Dreu et al., 1999).

Meanwhile, individuals with a low need for closure are oriented at processing more information (Kossowska, Jaško, Bar-Tal & Szastok, 2012). Their knowledge system is more susceptible to change, and, therefore, is more likely to adapt effectively to changing circumstances. Thus, individuals with a low need for closure are more likely to be persuaded by their negotiation partner. This of course comes at a cost—more resources are expended to change knowledge structures, which takes time (Kruglanski & Webster, 1996).

Recent research that has looked at individual differences in epistemic motivation, a construct related to but distinct from need for closure, has shown that a general motivation to delve into issues, to develop accurate

representations of the surrounding world, is instrumental in leading to better joint outcomes in negotiations (Ten Velden, Beersma & de Dreu, 2010). In these studies, epistemic motivation was either measured as an individual difference (Study 1) or manipulated (Study 2). In both cases, negotiating pairs with at least one party who sought more information than was readily available were able to attain better outcomes. The authors suggest that integrative solutions are often possible only if concealed or undiscovered information is actively sought out, particularly through a systematic approach, making epistemic motivation critical for avoiding superficial, suboptimal decision-making.

The purpose of the current research was to explore how need for closure affects not only objective outcomes but also subjective experiences of negotiations. Specifically, we measured negotiators' need for closure, their expectations concerning an upcoming negotiation, their subjective evaluation of the negotiation process and outcome, as well as the objective outcome of the negotiation. Based on prior research, taking these variables under consideration, we made the following predictions:

Hypothesis 1a: Following Ten Velden et al. (2010), individuals with a low need for closure will attain better outcomes, in terms of cumulative benefits, in the negotiation than individuals with a high need for closure.

Hypothesis 1b: Individual outcomes will be more discrepant among high NFC negotiating pairs. Individuals who are high in NFC place greater weight on their own points of aspiration, and so "freeze" on specific outcome expectations (Kruglanski et al., 2009). Thus, we expected that high NFC would lead to one partner's individual outcome being achieved at the cost of the other partner's individual outcome. This should not be true for individuals with a low NFC.

Hypothesis 2: Individuals with a low NFC will expect to and will generate more possible solutions, and will focus more on win-win solutions, than will individuals with a high NFC. Low need for closure allows an individual to modify expectations for satisfactory outcomes. Thus, such individuals should be more willing than individuals high in need for closure to entertain more solutions, including those with benefits for their partner.

Hypothesis 3: Because individuals low in NFC are more likely to consider solutions that would be beneficial to both parties, compared to high NFC individuals, this will lead to better joint outcomes as well as greater satisfaction with the negotiation, greater perceived fairness of outcome, greater perceived fairness of the negotiation process, more mutual trust, and greater interest in negotiating with their partner again.

## Method

### Participants

Seventy-six university students and recent graduates took part in this study; 38 women and 38 men. Eight participants did not follow instructions and so were removed from the final sample. Participants were aged between 19 and 32 years ( $M = 22.0$ ;  $SD = 2.2$ ). Participants were recruited through an advertisement on the internet or on a small brochure that invited them to fill out an online questionnaire. At the end of the online questionnaire, they were asked for their email or phone number if they wished to participate in a second, in-person, stage of the study. Individuals who filled out the online questionnaire were entered into a raffle for an e-book reader. Participants of the in-person stage were paid 20 PLN.

### Design and procedure

The study was conducted in two stages. The first stage was conducted online and consisted of an online questionnaire that allowed for selecting participants for the second, in-person, stage according to particular criteria.

Participants first completed a creativity scale (Strzałecki, 2000), then the Need for Closure Scale (Kossowska, 2003), followed by their demographic information as well as information about their negotiation experiences. Respondents who wished to be contacted for the second stage of the study created a code thanks to which their data could be later matched with data from the second stage.

Scores from the creativity scale were not relevant to the current hypotheses and so were not analysed. Respondents were divided into four quarters according to their scores on the Need for Closure Scale; only participants who did not have negotiation experience and who scored below the lowest quartile (low need for closure) or above the third quartile (high need for closure) were contacted for the second stage.

Appointments were made with pairs of participants matched in terms of need for closure and gender. Participants who arrived in the lab were given negotiation scripts (described more fully below) according to which they would conduct negotiations. In order to establish motivation for pursuing their interests in the negotiation, they were told that their payment for the session would depend on the negotiation outcome. They separately filled out a questionnaire asking about their expectations with regard to the upcoming negotiation. They then engaged in the negotiation; this was video-recorded. When they had concluded negotiations, they again separately filled out a questionnaire about their impressions of the negotiation process and outcome, their partner, etc. They were then thanked, fully debriefed, and paid for their participation. All participants in fact received the maximum amount of payment, 20 PLN.

### Materials

**Need for Closure (NFC).** Need for closure was measured with the Polish version of the Need for Closure

Scale (Kossowska, 2003). The scale contains 32 items such as, "I think that having clear rules and order at work is essential to success." Participants are asked to rate their agreement with each on a scale from 1, "I definitely do not agree", to 6, "I definitely agree". In order to divide the sample into high vs. low NFC, we calculated scores based only on items from the short version of the Need for Closure Scale (Kossowska, Hanusz & Trejtowicz, 2012). The mean score for the high NFC group was 62.1 ( $SD=3.0$ ;  $n=34$ ), while the mean score for the low NFC group was 45.0 ( $SD=3.4$ ;  $n=32$ ).

**Negotiation script.** The script for the negotiation concerned a vegetable-garden business venture between two neighbours, the South neighbor and the North neighbor (see Appendix for full script). The scripts for the South and North neighbors differed in terms of the weight assigned to dimensions under negotiation. The neighbors were to agree on: how much land each would offer for the garden; how much time each would devote to the garden over the growing season; how much money each would invest; and what vegetable they would grow. Each of the first three dimensions was assigned a certain number of points. Thus, each neighbor could calculate how many points s/he would "earn" by offering a certain amount of land, labor, or money. The scripts for the two neighbors differed such that one dimension was clearly more important (was worth more points) for one neighbor than the other; and vice versa. This structure allowed for a solution to the negotiation that would be more beneficial than a simple 50-50 split of land, time, and costs.

**Expectations.** Participants were asked to what extent they intended to cooperate with their partner, as well as whether they would try to find the best solution for both sides. They were also asked analogous questions about their expectations of whether their partner intended to cooperate with them and find the best solution for both sides. These questions were answered on scales from 1 ("very little") to 7 ("to a great extent"). Participants were also asked about their specific predictions for the negotiation outcome; these were not further analysed.

**Objective negotiation outcomes.** The objective results for the negotiations were calculated with three indicators. The first was a simple sum of the points achieved by each participant. The second was a cumulative total, including points of both negotiation partners. The third was point-discrepancy, that is, how much one partner's point total differed from the other's.

**Subjective negotiation outcomes.** Participants were asked 26 specific questions concerning their subjective experience of the negotiations. The questions relevant to the current hypotheses were about: whether they sought a win-win solution, whether their partner sought a win-win solution, whether they were satisfied with the negotiation outcome, whether the outcome and process were fair, whether they trust their partner, and whether they would like to negotiate with their partner again. Answers were given on 9-point scales such that higher scores indicated greater win-win seeking, more trust, more fairness, more satisfaction, more interest in negotiating again.

## Results

All negotiating pairs were able to come to an agreement. Table 1 (see page 290) presents descriptive statistics of all relevant dependent measures, split by NFC group. Table 2 (see page 291) presents a correlation matrix for all relevant measures.

### Hypotheses 1a and 1b: Objective negotiation outcomes

Analyses for objective outcomes were conducted for pairs, not individuals. There were no significant differences in any of the objective outcomes between groups with high vs. low NFC. Thus, Hypotheses 1a and 1b were not supported.

### Hypothesis 2: Generation of possible solutions

There were no significant differences among the two groups regarding their expectations for generation of win-win solutions (all  $t$ 's  $< 1$ ). However, a  $t$ -test showed that people who were low in NFC were more likely to declare after the fact that they had sought win-win solutions during the negotiation ( $M = 7.58$ ;  $SD = 1.56$ ) than were people high in NFC ( $M = 6.34$ ;  $SD = 2.13$ ;  $t(66)=2.71$ ,  $p=.009$ ). Moreover, low NFC participants recognized that their partners were seeking win-win solutions ( $M = 7.18$ ;  $SD = 1.83$ ) more so than did low NFC participants ( $M = 6.00$ ;  $SD = 2.11$ ;  $t(66)=2.46$ ,  $p=.02$ ). Thus, Hypothesis 2 was partially supported.

### Hypothesis 3: Subjective outcomes

We tested a number of mediation models, following the procedure described by Preacher and Hayes (2008), to test whether NFC predicted subjective outcomes due to its direct and/or indirect effect of the number and kind of solutions that are generated by negotiation partners. We used the PROCESS macro (Model 4, Hayes 2013) and requested 10,000 bootstrap samples.

None of the tested models were significant when joint objective outcomes (number of cumulative points attained by the negotiating pair) general impression of negotiation partner, trust in negotiation partner, interest in negotiating with the partner again, or outcome satisfaction were predicted. However, when predicting whether the process of the negotiation was fair, there was an indirect effect of NFC through generating win-win solutions. That is, those high in NFC were less likely to perceive both themselves and their partners as generating win-win solutions. While there was no direct effect of NFC on perceptions of fairness of process, there was a significant negative indirect effect,  $B=-.39$ ,  $SE= 0.18$ , with a bootstrap 95% bias corrected confidence interval of  $[-.83, -.10]$ , through perceptions of one's own generation of win-win solutions. This is shown in Figure 1 (see page 292). A similar pattern was observed for partner's generation of win-win solutions, with an indirect negative effect of  $B=-.29$ ,  $SE= 0.15$ ,  $CI [-.71, -.04]$  (also shown in Figure 1).

Table 1. Descriptive statistics of dependent measures for the sample as a whole, and split by high vs. low NFC

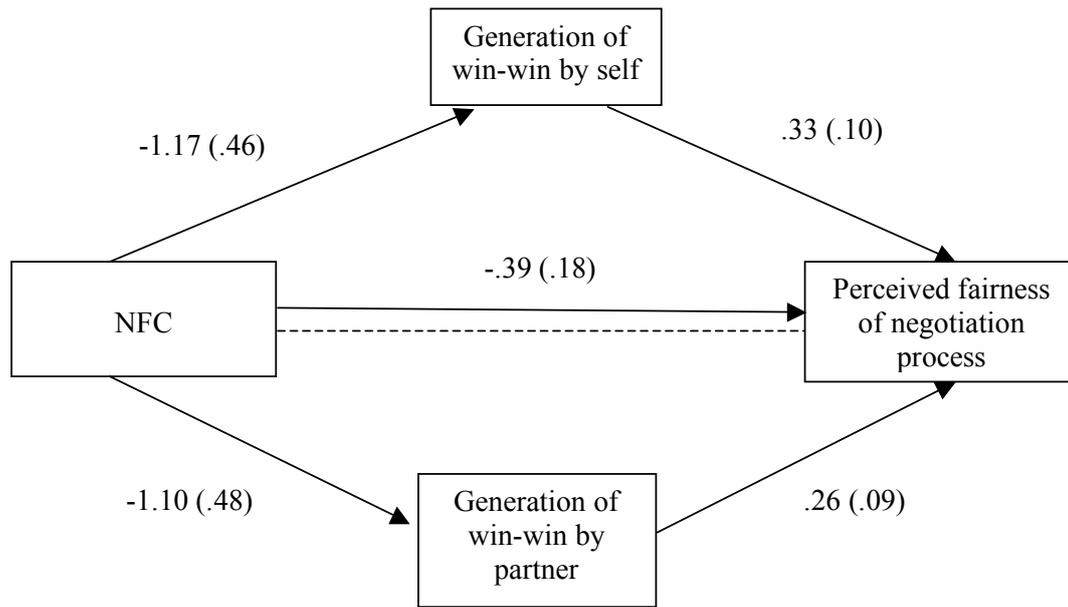
Variable	NFC	Possible range	<i>M</i>	<i>SD</i>
Before negotiations				
Expectations of cooperation by self	Low	1-7	5.1	1.1
	High		5.1	1.5
	<i>Overall</i>		5.1	1.3
Expectations of cooperation by partner	Low	1-7	4.3	1.3
	High		4.1	1.4
	<i>Overall</i>		4.2	1.4
Objective outcomes				
Individual points	Low	0-52	25.4	10.1
	High		24.2	11.6
	<i>Overall</i>		25.3	10.8
Summed points	Low	0-72	50.2	12.1
	High		51.0	11.5
	<i>Overall</i>		50.6	11.7
Difference in points	Low	0-36	12.9	9.5
	High		17.9	8.7
	<i>Overall</i>		15.5	9.3
After negotiations				
Fair solution	Low	1-9	7.5	1.5
	High		7.3	1.6
	<i>Overall</i>		7.3	1.8
Satisfaction with outcome	Low	1-9	7.3	1.5
	High		7.4	1.3
	<i>Overall</i>		7.4	1.4
Fair process	Low	1-9	7.8	1.7
	High		7.0	1.9
	<i>Overall</i>		7.3	1.6
Seeking win-win by self**	Low	1-9	7.6	1.6
	High		6.3	2.1
	<i>Overall</i>		6.9	2.0
Seeking win-win by partner*	Low	1-9	7.2	1.8
	High		6.0	2.1
	<i>Overall</i>		6.6	2.0
Trust for partner	Low	1-9	6.2	2.0
	High		6.1	2.1
	<i>Overall</i>		6.2	2.1
Interest in negotiating with partner again	Low	1-9	6.7	1.9
	High		6.8	2.0
	<i>Overall</i>		6.8	1.9

Note. \* indicates that the difference between high and low NFC group means for a given variable was significant at  $p < .02$ ; \*\* indicates that the difference was significant at  $p < .001$ .

Table 2. Correlation matrix of dependent measures for low NFC (above the diagonal) and high NFC (below the diagonal) participants. Only correlations significant at  $p < .10$  are shown. P-values are given in parentheses.

	Expectations			Objective outcomes				Subjective outcome variables						
	1.	2.	3.	4.	5.	6.	7.	8.	9.	10.	11.	12.	13.	14.
1. To what extent do you intend to cooperate with your partner?	1	-	.55 (.001)	-	-	-	-	-	-	-	-	-	-	-
2. To what extent does your partner intend to cooperate with you?	.59 (.001)	1	.31 (.08)	.62 (.001)	-	-	-	-	-	-	.41 (.02)	.33 (.07)	.43 (.01)	.38 (.03)
3. To what extent will you try to find the best solution for both sides?	.56 (.001)	.49 (.002)	1	.44 (.01)	-	-	-	.33 (.06)	-	-	.30 (.09)	-	-	-
4. To what extent will your partner try to find the best solution for both sides?	.36 (.04)	.70 (.001)	.59 (.001)	1	-	-	-.32 (.07)	-	-	-	-	-	-	.33 (.06)
5. Individual points	-	-	-.38 (.02)	-.36 (.03)	1	.61 (.001)	.45 (.01)	-	-	-	.36 (.04)	-	-	-
6. Joint points	-	-	-	-	.49 (.003)	1	.75 (.001)	-	-	-	.36 (.04)	-	-	-
7. Point discrepancy	-	-	-	-	.44 (.007)	.90 (.001)	1	-	-	-	.42 (.01)	-	-	-
8. To what extent did you try to find a solution beneficial for both sides?	.35 (.04)	-	.55 (.001)	-	-	-	-	1	.73 (.001)	-	-	.44 (.01)	-	-
9. To what extent did your partner try to find a solution beneficial for both sides?	.51 (.002)	.43 (.01)	.39 (.02)	.33 (.05)	-	-.34 (.04)	-.31 (.06)	.48 (.003)	1	.47 (.007)	-	.67 (.001)	.45 (.009)	.37 (.04)
10. Does the solution seem fair to you?	.37 (.04)	-	-	-	-	-	-	.40 (.01)	-	1	.56 (.001)	.59 (.001)	.47 (.007)	.65 (.001)
11. How satisfied are you with the outcome of the negotiation?	.31 (.07)	-	-	-	-	-	-	-	.45 (.006)	-	1	.41 (.02)	.41 (.02)	.43 (.02)
12. Did the process of the negotiation seem fair to you?	-	-	-	-	-	-	-	.37 (.03)	-	.76 (.001)	.50 (.002)	1	.44 (.01)	.63 (.001)
13. To what extent do you trust your partner?	-	-	-	-	-	.28 (.10)	-	-	-	-	.45 (.006)	-	1	.61 (.001)
14. Would you like to negotiate with this partner again?	-	-	-	-	-	.33 (.05)	-	-	-	-	.29 (.09)	.69 (.001)	-	1

Figure 1. Mediation effects of NFC on perceived fairness of negotiation process through perceived generation of win-win solutions by self (top) and partner (bottom).



Note: All entries significant at  $p < .02$ . Entries are unstandardized regression coefficients with standard errors in parentheses. The dotted line indicates the non-significant path for simple regression (not controlling for mediators).

## Discussion

Apart from the structure and context of negotiations, an important factor influencing the outcome of negotiations are the particular individuals taking part in them (Thompson, Loewenstein & Gentner, 2000). The current research focused on NFC as an individual difference variable that influences the process, and thus the outcome of negotiations. We expected that level of NFC would affect expectations about how the negotiation would unfold, perceptions of the negotiation process and outcome, as well as the quality of the ultimate agreement. Specifically, we expected that individuals with low need for closure would achieve better, more beneficial, outcomes, because these individuals are likely to negotiate with more flexibility, generate more potential solutions, and thus increase the chances of reaching an optimal solution. Moreover, previous findings indicate that individuals low in need for closure (de Dreu, Koole, & Oldersma, 1999) or high in epistemic motivation (Ten Velden et al., 2010) might be more likely to exchange more information, illuminating more relatively painless compromises.

We found that need for closure did not predict overall outcome, however. In general, optimal solutions, where high point totals would be expected, were not attained. Hypothesis 1a was not, therefore, supported. This is in contrast with results from Ten Velden et al. (2010), who found that epistemic motivation—which is related to NFC—increased joint outcomes. This could be due to the specific differences between the constructs of epistemic motivation vs NFC—the former is focused more on exploration vs. lack thereof, while the latter is focussed on the limitations of search vs. lack thereof. It is possible

that a lack of limitation does not constitute a motivation for exploration. These relationships should certainly be investigated in future research.

We also did not find support for Hypothesis 1b: pairs high in NFC did not have more discrepant individual negotiation outcomes than did pairs low in NFC. This is again not altogether consistent with prior research (Kruglanski et al., 2009), which indicated that the former individuals are guided by their own points of aspiration that they set before the negotiations begin. They also have a tendency to anchor on these aspirations and make fewer concessions during negotiations than people low in NFC (Kruglanski et al., 2009). It is possible that we did not observe similar patterns because we paired individuals who had similar levels of NFC; thus, anchoring too strongly on one's aspirations might have led to a lack of agreement.

Hypothesis 2 was partially supported by our data: although they did not differ in their expectations before negotiations, when asked after negotiations, low NFC was associated with more declared seeking of win-win solutions than was high NFC. It is possible that individuals high in NFC, due to a priori anchoring on a particular outcome (Kruglanski et al., 2009) perceive the negotiation situation as more competitive than do individuals low in NFC. They might not acknowledge or see the possibility of reconciling both parties' interests in a negotiation, and so disregard to the possibility of meeting both parties' goals without making serious concessions. Individuals high in NFC might be functioning more selfishly, and be less open to maximizing common benefits. However, since individual point totals were not higher in this group, it appears that selfish motivation is not crucial to working out integrative solutions.

Finally, we hypothesized that seeking out win-win solutions would indirectly link NFC with a number of subjective assessments of the negotiation process and outcome. Though most of these models were not significant, we found that perceptions of process fairness were indeed driven indirectly by NFC, through perceptions of seeking win-win solutions both by the self and by the partner. This indicates that this individual characteristic could affect the extent to which people consider the negotiation process as legitimate, and thus their motivation to pursue negotiation as a conflict resolution strategy. This is something to be explored in future research.

### Limitations and future directions

Results from this study indicate that need for closure is one variable that affects how individuals negotiate and react to the negotiation process, and to its outcome. However, the study was not without limitations. First among them is that our pairings were between partners whose NFC was similar. It would be worthwhile to replicate the procedure with pairs of individuals of varying levels of NFC, to assess how a single individual's NFC affects the negotiation process. It is possible that, as with epistemic motivation (Ten Velden et al. 2010), one individual's low NFC could overcome the other's high NFC to reach more optimal solutions. In our study, it is possible that the equal pairings created relative ease of communication, which reduced the need of finding more satisfactory solutions.

Another important limitation is that we measured declarations of seeking win-win solutions, not the behaviour itself. It is possible that individuals low in NFC only declare that they sought out more such solutions; while the actual number is similar to those sought by high NFC participants. Future research should explore this possibility.

Additionally, interpretation of our results should be limited to the specific script used in the negotiations. Although the mechanisms we study should be relevant in various negotiation situations, regardless of specific content, replicating the study design using different materials would also help ascertain the reliability of our findings.

Despite these limitations, results from this study provide a basis for further investigations of the influence of need for closure on negotiations. It has long been known that perceptions of fairness of process are key to satisfaction with decisions and engagement in group goals (e.g., Tyler & Lind, 1992). Knowing how this is linked to the individual characteristics of negotiators can help shape strategies to increase the satisfaction of both parties and improve long term relationships.

More research would allow for increasing the chances of attaining optimal solutions through appropriate selection and training of negotiators. This could be particularly important in long-term negotiation relationships, such as two companies doing business together over decades, where trust and comparable benefits are a priority. It is possible that individuals low in NFC would be suited to such negotiations, whereas individuals high in NFC would be better suited for negotiations where

there is less flexibility with regard to concessions and time is short (such as negotiating with terrorists).

Finally, including a dynamic assessment of NFC (Hong, Morris, Chiu & Benet-Martinez, 2000; Kruglanski, et al. 2009) would provide a worthwhile exploration of how this variable affects negotiations in a moment-by-moment sense (Jochemczyk & Nowak, 2009, 2010). Physiological reactions, such as galvanic skin response and heart rate, are linked to need for closure (Kruglanski et al., 2009) and could be measured in laboratory conditions during negotiation. In this way, we could assess the extent to which immediate changes in NFC affect specific behaviors leading to better, or worse, negotiation outcomes.

### References

- Barry, B., Friedman, R. A., & Smith, C. (1998). Bargainer characteristics in distributive and integrative negotiation. *Journal of Personality and Social Psychology*, 74(2), 345–359. doi: 10.1037/0022-3514.74.2.345
- Bazerman, M. H., Curhan, J. R., Moore, D. A., & Valley, K. L. (2000). Negotiation. *Annual Review of Psychology*, 51(1), 279–314. doi:10.1146/annurev.psych.51.1.279
- Bazerman, M. H., & Neale, M. (1994). *Negotiating Rationally*. New York, NY: Free Press.
- Bukowski, M., Sędek, G., Kossowska, M., & Trejtowicz, M. (2012). The impact of background category information on the creation of social cliques: The role of need for cognitive closure and decisiveness. *Polish Psychological Bulletin*, 43(1), 12–19. doi:10.2478/v10059-012-0002-9
- Carnevale, P. J. (2006). Creativity in the Outcomes of Conflict. In M. Deutsch, P. T. Coleman, & E. C. Marcus (Eds.), *Handbook of Conflict Resolution*. Jossey-Bass.
- Chatterjee, K., & Samuelson, W. (1983). Bargaining under Incomplete Information. *Operations Research*, 31(5), 835–851.
- Chirumbolo, A., Areni, A., & Sensales, G. (2004). Need for cognitive closure and politics: Voting, political attitudes and attributional style. *International Journal of Psychology*, 39(4), 245–253. doi:10.1080/00207590444000005
- Curhan, J. R., & Pentland, A. (2007). Thin slices of negotiation: predicting outcomes from conversational dynamics within the first 5 minutes. *The Journal of applied psychology*, 92(3), 802–11. doi:10.1037/0021-9010.92.3.802
- De Dreu, C. K. W., Koole, S. L., & Oldersma, F. L. (1999). On the Seizing and Freezing of Negotiator Inferences: Need for Cognitive Closure Moderates the Use of Heuristics in Negotiation. *Personality and Social Psychology Bulletin*, 25(3), 348–362. doi:10.1177/0146167299025003007
- De Dreu, C. K., Weingart, L. R., & Kwon, S. (2000). Influence of social motives on integrative negotiation: a meta-analytic review and test of two theories. *Journal of personality and social psychology*, 78(5), 889–905.
- De Dreu, Carsten K W. (2003). Time pressure and closing of the mind in negotiation. *Organizational Behavior and Human Decision Processes*, 91(2), 280–295. doi:DOI: 10.1016/S0749-5978(03)00022-0
- De Dreu, Carsten K W, Koole, S. L., & Steinel, W. (2000). Unfixing the fixed pie: a motivated information-processing approach to integrative negotiation. *Journal of Personality And Social Psychology*, 79(6), 975.
- Dreu, C. De, Beersma, B., Steinel, W., & Kleef, G. Van. (2007). The psychology of negotiation: Principles and basic processes. In A. W. Kruglanski & E. T. Higgins (Eds.), *Social Psychology: Handbook of Basic Principles* (2nd ed., pp. 608–629). New York, NY: Guilford Press.
- Elfenbein, H., Curhan, J., Eisenkraft, N., Shirako, A., & Baccaro, L. (2008). Are some negotiators better than others? Individual differences in bargaining outcomes. *Journal of Research in Personality*, 42(6), 1463–1475. doi:10.1016/j.jrp.2008.06.010
- Fisher, R., & Ury, W. L. (2011). *Getting to yes: Negotiating agreement without giving in*. Penguin.
- Grada, E. De, Kruglanski, A. W., Mannetti, L., & Pierro, A. (1999).

- Motivated cognition and group interaction: need for closure affects the contents and processes of collective negotiations. *Journal of Experimental Social Psychology*, 35(4), 346–365. doi: 10.1006/jesp.1999.1376
- Harinck, F., De Dreu, C. K. W., & Van Vianen, A. E. M. (2000). The impact of conflict issues on fixed-pie perceptions, problem solving, and integrative outcomes in negotiation. *Organizational Behavior and Human Decision Processes*, 81(2), 329–358.
- Hayes, A. F. (2013). *An introduction to mediation, moderation, and conditional process analysis: A regression-based approach*. New York: Guilford Press.
- Hong, Y., Morris, M. W., Chiu, C., & Benet-Martinez, V. (2000). Multicultural minds: A dynamic constructivist approach to culture and cognition. *American Psychologist*, 55(7), 709–720. doi:10.1037/0003-066X.55.7.709
- Houghton, D. C., & Grewal, R. (2000). Please, let's get an answer--any answer: Need for consumer cognitive closure. *Psychology and Marketing*, 17(11), 911–934. doi: 10.1002/1520-6793(200011)17:11<911::AID-MAR1>3.0.CO;2-4
- Jochemczyk, L. W., & Nowak, A. (2009). Sekret zmarnowanego czasu – dynamika budowania współdzielonej rzeczywistości w negocjacjach. *Psychologia*, 3(11), 133–143.
- Jochemczyk, L. W., & Nowak, A. (2010). Constructing a network of shared agreement: a model of communication processes in negotiations. *Group Decision and Negotiation*, 19(6), 591–620. doi:10.1007/s10726-009-9165-y
- Kahneman, D., & Tversky, A. (1973). On the psychology of prediction. *Psychological Review*, 80(4), 237.
- Kimmel, M. J., Pruitt, D. G., Magenau, J. M., Konar-Goldband, E., & Carnevale, P. J. D. (1980). Effects of trust, aspiration, and gender on negotiation tactics. *Journal of Personality and Social Psychology*.
- Kossowska, M. (2005). *Umysł niezmienny...: poznawcze mechanizmy sztywności*. Kraków: Wydawnictwo Uniwersytetu Jagiellońskiego.
- Kossowska, M. (2007). The role of cognitive inhibition in motivation toward closure. *Personality and Individual Differences*, 42(6), 1117–1126. doi:http://dx.doi.org/10.1016/j.paid.2006.09.026
- Kossowska, M., Hanusz, K., & Trejtowicz, M. (2012). Skrócona wersja Skali Potrzeby Poznawczego Domknięcia. Dobór pozycji i walidacja skali. *Psychologia Społeczna*, 7(1), 89–99.
- Kossowska, M., Jaśko, K., Bar-Tal, Y., & Szastok, M. (2012). The relationship between need for closure and memory for schema-related information among younger and older adults. *Aging, Neuropsychology, and Cognition*, 19(1-2), 283–300. doi:10.1080/13825585.2011.632617
- Kramer, R. M. E., & Messick, D. M. (1995). *Negotiation as a social process: New trends in theory and research*. Sage Publications, Inc.
- Kruglanski, A. W., Dechesne, M., Orehek, E., & Pierro, A. (2009). Three decades of lay epistemics: The why, how, and who of knowledge formation. *European Review of Social Psychology*, 20(1), 146–191. doi:10.1080/10463280902860037
- Kruglanski, A. W., & Webster, D. M. (1996). Motivated closing of the mind: "Seizing" and "freezing." *Psychological Review*, 103(2), 263–283. doi:10.1037/0033-295X.103.2.263
- Lax, D. A., & Sebenius, J. K. (1986). Interests: The measure of negotiation. *Negotiation Journal*, 2(1), 73–92.
- Lax, D. A., & Sebenius, J. K. (1987). *The Manager as Negotiator: Bargaining for Co-operation and Competitive Gain* (p. 376). The Free Press.
- Lewicki, R., Barry, B., & Saunders, D. (2009). *Negotiation: Readings, Exercises, and Cases* (p. 720). McGraw-Hill/Irwin.
- Lewicki, R. D., Barry, B., & Saunders, D. M. (2010). *Essentials of Negotiations* (6th ed.). McGraw-Hill Publishing.
- Ma, Z., & Jaeger, A. (2005). Getting to yes in China: Exploring personality effects in Chinese negotiation styles. *Group Decision and Negotiation*, 14(5), 415–437.
- Malhotra, D., & Bazerman, M. (2007). *Negotiation genius: How to overcome obstacles and achieve brilliant results at the bargaining table and beyond*. Random House Digital, Inc.
- Mannetti, L., Pierro, A., & Kruglanski, A. (2007). Who regrets more after choosing a non-status-quo option? Post decisional regret under need for cognitive closure. *Journal of Economic Psychology*, 28(2), 186–196.
- Preacher, K. J. & Hayes, A. F. (2008). Asymptotic and resampling strategies for assessing and comparing indirect effects in multiple mediator models. *Behavior Research Methods*, 40, 879–891. doi:10.3758/BRM.40.3.879
- Roets, A., Van Hiel, A., & Cornelis, I. (2006). The Dimensional Structure of the Need for Cognitive Closure Scale: Relationships with "Seizing" and "Freezing" Processes. *Social Cognition*, 24(1), 22–45. doi:10.1521/soco.2006.24.1.22
- Ross, L., & Nisbett, R. E. (1991). *The person and the situation: Perspectives of social psychology*. McGraw-Hill Book Company.
- Różycka, J., Wojciszke B. (2009). Dlaczego ludzie myślą, że życie jest grą o sumie zerowej? Uwarunkowania i konsekwencje społeczno-ekonomiczne. In: Cislak, A., Henne, K., Skarżyńska, K. (Eds.) *Przekonania w życiu jednostek, grup, społeczności* (pp. 67-95). Warsaw: Academica.
- Rubin, J. Z., & Brown, B. R. (1975). *The social psychology of bargaining and negotiation*. London: Academic Press.
- Strzałecki, A. (2000). Model „Stylu Twórczego Zachowania się” jako wskaźnik pozycji społecznej uczniów w grupie. *Forum Psychologiczne*, 2(5), 160–171.
- Ten Velden, F. S., Beersma, B., & De Dreu, C. K. W. (2010). It takes one to tango: the effects of dyads' epistemic motivation composition in negotiation. *Personality and Social Psychology Bulletin*, 36, 1454–1466. doi: 10.1177/0146167210383698
- Thompson, L. (1990). Negotiation behavior and outcomes: Empirical evidence and theoretical issues. *Psychological Bulletin*, 108(3), 515–532. doi:10.1037//0033-2909.108.3.515
- Thompson, L. (2005). *The heart and mind of the negotiator*. Upper Saddle River, NJ: Prentice Hall.
- Thompson, L., Gentner, D., & Loewenstein, J. (2000). Avoiding missed opportunities in managerial life: analogical training more powerful than individual case training. *Organizational Behavior and Human Decision Processes*, 82(1), 60–75. doi:http://dx.doi.org/10.1006/obhd.2000.2887
- Thompson, L., & Hastie, R. (1990). Social perception in negotiation. *Organizational Behavior and Human Decision Processes*, 47(1), 98–123.
- Tibon, S. (2000). Personality traits and peace negotiations: Integrative complexity and attitudes toward the Middle East peace process. *Group decision and negotiation*, 1–15.
- Tversky, A., & Kahneman, D. (1974). Judgment under uncertainty: heuristics and biases. *Science* (New York, N.Y.), 185(4157), 1124–31. doi:10.1126/science.185.4157.1124
- Tversky, A., & Kahneman, D. (1981). The framing of decisions and the psychology of choice. *Science*, 211, 453–458.
- Tyler, T.R., & Lind, A. (1992). A relational model of authority in groups. *Advances in Experimental Social Psychology*, 25, 115–191.
- Vetschera, R. (2013). Negotiation processes: an integrated perspective. *EURO Journal on Decision Processes*, 1(1-2), 135–164. doi:10.1007/s40070-013-0006-5
- Walton, R. E., & McKersie, R. B. (1965). *A behavioral theory of labor negotiations: An analysis of a social interaction system*. Cornell University Press.
- Webster, D. M., & Kruglanski, A. W. (1994). Individual differences in need for cognitive closure. *Journal of Personality and Social Psychology*, 67(6), 1049–1062. doi:10.1037/0022-3514.67.6.1049

## Appendix

Negotiation script. Bold text indicates information provided to the south neighbor; text in italics indicates information provided to the north neighbor. Scripts were written to match the gender of participants.

### South neighbor/North neighbour

You have been thinking about opening up your own business, growing and selling organic vegetables, for some time. You would need a large plot of land for this, so you have started talking to your neighbor to discuss going into

business together. If you join your (adjacent) yards, you will have enough land to start a viable business. To open the business, you will also have to split the costs of purchasing seedlings and necessary equipment and installations (fence, irrigation, etc.). Furthermore, you will have to divide the labor involved in this enterprise (how many weeks are needed to get the garden going). Finally, you will have to decide what to plant (which might be most important). You have decided to split the profits 50-50, regardless of investments.

The specific conditions of your agreement can be translated into points. The more points you have at the end of the season, the better. These points will let you determine your preferences for various solutions.

Your yard is 1000 m<sup>2</sup>, divided into 10 equal segments. You can devote up to **9 segments/9 segments** to the business. To open the business, you will need 10 segments in total. For each segment LESS than 9 that you devote to the business, you will receive **1 point/2 points**. If your neighbor provides the whole land necessary, you will receive **9 points/18 points**. If you each provide 5 segments, you will get **4 points/8 points**. If you devote your 9 segments to the business, you will not get any points.

You have estimated the cost of seedlings and other equipment to be 10 thousand PLN. The maximum you can invest is **8 thousand PLN/6 thousand PLN**. For each 1 thousand PLN you invest LESS than that, you will receive **1 point/2 points**. Thus, if you invest nothing and your neighbor pays the full 10 thousand you will get **8 points/12 points**. If you split the costs 50-50, you will get **3 points/2 points**. If you spend all of your money, you will not get any points.

You have estimated the amount of labor necessary to get the business going to be 10 weeks. **You have various plans for the spring-summer season, so you can spend up to 6 weeks on the business, but you would prefer not to spend any time on it at all.** *You have no particular plans for the spring-summer season, so you can spend a full 10 weeks on the business.* For each week FEWER than **6 weeks/10 weeks** you will receive **8 points/1 point**. Thus, if your neighbor does all the work, you will receive **48 points/10 points**. If you split the labor 50-50, you will receive **8 points/5 points**. If you devote all the time you have to the business, you will not get any points.

Your vegetable garden will be divided into 10 standard segments, on which you can plant various vegetables. You have decided to plant either carrots or tomatoes. These two crops currently are likely to provide the same profit. However, in **the Weekly Gardener/Farmer's Weekly**, you have read that the price of **tomatoes/carrots** should be about 10% higher than it is now. The price of **carrots/tomatoes**, meanwhile, is unlikely to change. You remember that **the Weekly Gardener/Farmer's Weekly** has always been a good predictor of vegetable prices. Your profit ultimately depends on the future prices of the vegetables you decide

to plant. If **tomato/carrot** prices rise by 10%, your profit will be 10% greater. If, on the other hand, the prices fall by 10%, your profits will be lower. You can plant **tomatoes and carrots/carrots and tomatoes** in whatever proportions you want in your garden, but your profit will depend on their future prices.

Your task is to negotiate the best possible terms of entering into this business with your neighbor. Take a moment to think about the points in this game, and think about reasons that might underlie your preference for some solutions over others. Remember that the total profit will be split in half between you and your partner, regardless of investments. Your final results will be the profit you make, plus the points you earn. The more points you earn, the better.

Summarizing, you need:

- Land → 10 segments. You can devote up to 9 – each segment less → **+1 point/ +2 points**.
- Money → 10 thousand PLN. You can invest up to **8000/6000** PLN – each 1 thousand less → **+1 point/ +2 points**.
- Labor → 10 weeks. You can devote 6 weeks/10 weeks – each week less → **+8 points/ +1 point**.
- Seedlings → what proportion of carrots vs. tomatoes you plant will ultimately determine your profit. According to **the Weekly Gardener/Farmer's Weekly**, the price of **tomatoes/carrots** will be higher this year.