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The Influence of Cognitive Empathy on the Investments Individuals Make in an Asymmetric Interpersonal Conflict

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Abstract

We have all been in conflict at least once in our lives. Often, one side wants to increase its gains while the other side wants to protect against possible losses. This is an asymmetric conflict. This study is about the influence of the competence to view the situation from the perspective of another person (cognitive empathy) on the relationship between the role one has in a conflict and the investments one makes in this conflict. I expected that attackers with a high level of cognitive empathy would invest less in the conflict, look more for other options and equally withdraw from the conflict compared to attackers with a low level of cognitive empathy. For defenders I did not expect to find any differences because defence is mostly an automatic mechanism and thus impulsive. These expectations were tested using The Davis Interpersonal Reactivity Index (IRI) (Davis, 1983) and the Attacker-Defender Game (de Dreu & Gross, 2018). There was no evidence found suggesting that cognitive empathy influences the relationship between role and the investments individuals make in an asymmetric conflict.

John has been working on a big project for months. He reports to his supervisor Joyce, who is responsible for this project. All the hard work paid off and a big bonus is promised to John by the CEO. Joyce went to the CEO and said that she was responsible for the project so she should get this bonus. Joyce is challenging the status quo by going to the CEO to claim the bonus that was promised to John. She invested in the conflict. John has to respond to this attack to protect the status quo and avoid possible losses. He has do decide whether to defend himself, withdraw or look for other options. The extent to which either of them could look at the situation from the perspective of the other, might influence their decisions. Cognitive empathy is the capability to see the situation from the perspective of someone else (Smith, 2006). Could cognitive empathy influence the decisions Joyce and John make? If Joyce has a high level of cognitive empathy, would that change her investments in certain options? Would she be more or less aggressive in her attack? Would she not attack at all or would she perhaps look for other options that will satisfy both her and Johns gains? A high level of cognitive empathy could also influence John his decisions. How strongly would he defend himself? Would he look for other options or sit back and let it happen?

Interpersonal Conflict

Interpersonal conflicts are happening in diverse situations. Conflicts often arise when two individuals want something but only one is able to obtain this, often at the cost of the other (Coombs & Avrunin, 1988). When individuals are in conflict, they invest energy and effort to win or to protect against exploitation (De Dreu, Giaccomantoni, Giffin & Vecchiato, 2018). The analysis of conflicts is studied by many researchers. Various experiments have shown that individuals in an interpersonal conflict are inclined to invest in attacking on the cost of their opponent (Bohm, Rusch, & Gureck 2016; Chowdhury, Jeon & Ramalingam, 2017; De Dreu, Kret & Sligte, 2016; De Dreu, Scholte, Van Winden & Ridderinkhof, 2015). However, there are still many questions unanswered in this line of research. What choices do

individuals make when being in a competitive asymmetric conflict? Do they invest in conflict, do they withdraw or do they look for mutual gains? Do they behave differently if they can see the situation through the perspective of their opponent? Is this the same for both attackers and defenders? These questions remained unanswered up until now.

Conflicts can be symmetric or asymmetric depending on various factors such as position, age, experience or money of the two individuals involved in the conflict. For example, if John would compete with one of his peers, both of them would have roughly the same means, power resources and rules that they could use in the conflict. This would be a symmetric conflict. However, Joyce is higher on the hierarchy than John. She is John's supervisor and thus is able to draw upon several power resources that widen her range of strategies (Aggestam, 2002). John, on the other hand, does not have as many options in this conflict as Joyce. Additionally, the gains are different for both. John was already promised the bonus. Joyce initiated the conflict and stands to gain the bonus whereas John only reacts to the attack to protect the status quo and to avoid losing the bonus. Consequently, it is an asymmetric conflict. The kind of role and the potential gains and losses one has in a conflict could influence the investments both parties make in a conflict. In other words, an attacker could behave differently than a defender.

Differences Between Attackers and Defenders.

What makes attackers and defenders behave differently? When a larger organization with more power and influence wants to take over a smaller organization, the typical first reaction of the smaller organization is to defend itself to protect the status quo. In many interpersonal conflicts there is also an attacker who wants to change the status quo, while the defender wants to protect the status quo. Different researchers describe a conflict as situations where one cannot reach its goal when the opponent also reaches its goal. Reaching the goal is often at the expense of the opponent (Coombs & Avrunin, 1988; de Dreu, 2010). If an

attacker attacks, the defender can either defend itself to protect the status quo or withdraw from the conflict and thus lose its gains. In a conflict, people can perceive the opponent as threatening. Joyce and John see each other as a threatening opponent because they both want that bonus. If one will get the bonus, that means that the other one won't.

But what if there was a third option? An innovation that will serve the gains of both Joyce and John? Previous research (e.g. de Dreu et al., 2018; Davis, 1994; Duan & Hill, 1996) has been limited to only two options in an interpersonal conflict. Both individuals only had the option to invest in conflict by attacking the opponent or defending themselves from the opponent or to withdraw from the conflict. As a result, if one has a desire to proactively behave or to increase its gains this would logically result in investing in the conflict instead of withdrawing from it. Research has shown that the investments individuals make in an interpersonal conflict increases when the individuals are able to choose an option that would not necessarily hurt their opponent (Weisel & Böhm, 2015**;** Halevy et al. 2008). This would imply that when individuals have (proactive) options to innovate by increasing their gains without harming the opponent, they would be less likely to attack their opponent and more likely to look for other options to increase their gains. This would increase the chances of a 'win-win' situation. If this is indeed true, would that be the same for all individuals or are there individual differences? To test this, we introduced an option called innovation. When individuals choose to innovate in a conflict, they do not harm the opponent but they can still increase their gains.

People generally find it worse to lose something than to gain something. Kahneman and Tversky (1991) call this loss aversion. Consequently, this suggests that individuals find it harder to lose when they are being attacked than they like it to win when they attack. Therefore, it is likely to expect that defenders will invest more in defence than attackers do in attack. De Dreu et al. (2018) found similar results in their research. They stated that

individuals compete less intensely when they attack in comparison than when they defend. A large difference is that attacking is often planned whereas defence is often impulsive. Before individuals attack, they first think about a strategy and the possible costs and gains. Only after they thought about this, they will decide whether to attack or not. This is different for defenders. Defence is often reactive and impulsive (de Dreu et al., 2018). If one is being attacked, the defender will signalize this threat. This increases the stress level. The adrenaline level goes up, cortisol levels rise and the defender is ready for action (Sapolsky, Romero & Munck, 2000). There are similarities among animals: if a rabbit is attacked by a fox, the rabbit will run for his life while the fox is only running for his dinner. The rabbits defence is impulsive whereas the fox thought about a strategy before attacking the rabbit (Dawkins & Krebs, 1979).

The Role of Cognitive Empathy

Besides the role one has in a conflict, what other difference can account for different behaviours? As asked in the example in the introduction, would Joyce and John make different choices in the conflict when they could see the situation from the perspective of the other? Empathy refers to sensitivity and understanding the mental states of others. Empathy contains an affective and a cognitive domain. First, the affective domain relates to the competence to experience the feelings of another person. Some argue that affective empathy is more relevant to sympathy (e.g. Davis, 1994). Second, the cognitive domain relates to the competence to understand the experience of another and to view a situation from their perspective. This is called cognitive empathy (Smith, 2006). Individuals can have different levels of cognitive empathy. There has been extensive research on the effect of a broader definition of empathy in an interpersonal conflict (e.g. Batson, Klein, Kighberger & Shaw, 1995; de Dreu et al., 2018; Rai & Graham, 2017). However, the explicit role of cognitive empathy in an asymmetric interpersonal conflict remains undiscovered.

Eisenberg and Strayer (1987) state that cognitive empathy is linked to prosocial behaviours such as helping, sharing, cooperating and conforming to other socially accepted behaviours and thus not with attacking. Hence, individuals with a high level of cognitive empathy are more likely to show these behaviours. This means that individuals who have the option to increase their gains through innovative non-aggressive means, would prefer that over aggressive means if they have a high level of cognitive empathy. Batson et al. (1995) showed that participants, who were primed with empathy, were more likely to allocate resources to the person that they felt empathy for. De Dreu et al. (2018) did research on the trait empathy instead of the primed empathy and found similar results. Participants with a strong sense of concern for others, attacked less often and when they did attack, it was less vigorously. Interestingly, there was no difference for the defenders. Defenders with both low- and high empathy invested equally in defence. However, in these researches, the attackers could only attack or withhold and the defenders could only defence or withhold. These researches were based on the broader term of empathy. Unfortunately, it remains unclear what the influence of cognitive empathy is on the decision individuals make in an asymmetric interpersonal conflict, when there is a third option to actively increase their gains - without harming the opponent.

The Investments Attackers Make

Empathy seems to play a role in the investments individuals make in a conflict. But what is the role of cognitive empathy specifically for attackers? Empathy is known to decrease aggression (Bjorkqvist, Osterman & Kaukiainen, 2000) and aggression and attacking lie very close to each other. Aggression increases harmful behaviour such as attacking, exploiting and subordinate the opponent. These behaviours are generally decreased by empathy (Decety & Cowell, 2014; Lamm, Decety & Singer, 2011). Rai and Graham (2017) state that when individuals feel superior towards their opponent, their psychological

justification for attacking increases. It becomes easier to attack to reach your goal on the expense of your opponent when you feel superior. However, they also state that a high level of other-concern decreases feelings of superiority and therefore also decreases the psychological justification for attacking. It becomes less 'moral' to attack. De Dreu et al. (2018) found similar results in their research. They found that individuals, who had a strong concern for others, invested less in attack than individuals who had a less strong concern for others. A broad term of empathy was used in this research. Thus, it remains unclear what the specific role of cognitive empathy is. However, the decrease in attack could be because these individuals were able to see the situation from the perspective of their opponent and therefore had more reluctance to attack. It seems reasonable to suspect that participants who have a high level of cognitive empathy, will invest less in attack.

Individuals who have a low level of cognitive empathy, are less able to understand the actions of their opponent because they are less able to see the situation from their perspective (Smith, 2006). Individuals who have a high level of cognitive empathy often have positive images about the other. This is because they can see the perspective from their point of view and therefore understand their actions (Smith, 2006). Eisenberg and Strayer (1987) state that empathy is linked to prosocial behaviours. Trying to increase your gains through innovative options where you do not hurt your opponent is more prosocial than choosing to attack. One will not hurt their opponent this way but can still increase its gains. Hypothesis 1 is therefore: ''Attackers who have a high level of cognitive empathy will invest less in attack, more in innovation and equal in keep compared to attackers who have a low level of cognitive empathy''.

The Investments Defenders Make

How are the defenders expected to invest in an asymmetric interpersonal conflict? There has been extensive research on behaviours within interpersonal conflicts. Many

researchers agree that defence is mostly fast and impulsive (e.g. de Dreu et al., 2014; Nelson & Trainor, 2007; De Dreu et al., 2011). For example, if a stranger starts hitting you in the middle of the street, you have to respond to this. Some will fight back and some will run away. Whether you are high- or low on cognitive empathy, the decision will happen fast and impulsively. Defending yourself against a potential threat is an automatic defence mechanism and thus impulsive. Because of this, it is likely that this is the same for all individuals with different levels of cognitive empathy. As mentioned before, loss aversion can play a role in the investments individuals make in an interpersonal conflict (Kahneman & Tversky, 1991). Because individuals generally find it worse to lose something than they like it to gain something, they are likely to invest in defense to protect the status quo. This is a general phenomenon and thus is expected to be the same for all individuals with different levels of cognitive empathy.This raises the question if cognitive empathy influences the decisions of the defender for innovative options. As mentioned before, defensive aggression is often fast and impulsive (e.g. de Dreu et al., 2014; Nelson & Trainor, 2007; De Dreu et al., 2011). Choosing innovation is only an attractive option if the attacker chooses not to attack. One can increase its gain through innovative options. However, if he does get attacked but does not defend himself, he will lose everything including the potential gains from innovation. Remember Joyce and John from the example. If Joyce goes to her manager to make sure she will get the bonus while John is looking for other options that will benefit them both, Joyce could end up with everything and John with nothing. Choosing innovation seems to be a 'luxury option' and only an attractive option when one is not under attack. Because this situation can be expected for both high- and low cognitive empathic individuals, no differences in investments in innovation between defenders with high- and low levels of cognitive empathy are expected. Hypothesis 2 is therefore: "*Defenders who have a high level*

of cognitive empathy will invest equal in defence, innovation and keep compared to defenders who have a low level of cognitive empathy''

Method

Sample

262 participants took part in this study. For this research, we used 115 participants that were in the experimental condition. Participants could participate if they were older than 17 years. From this group, 93 (80.9%) were female and 22 (19.1%) male. The levels of education were secondary school (13.9%), HBO or university not completed (47.8%), Bachelor degree (24.3%) and Master degree or higher (13.9%). The average age was 21.8 (*SD* = 3.33). Income was measured on a scale from 1 (much lower than average) to 5 (much higher than average). The average score was 3.63; *SD* = 2.32. The level of religiosity was measured using a scale from 1 (atheist) to 5 (very religious). The average score was 3.56; *SD* = 1.63. These participants were recruited at Leiden University through the Leiden University Research Participation Platform (SONA), in person at the faculty building of Psychology and through social media. Each participant got 2 credits or €6.50 for participation. In addition to this, there was a possibility to win a bonus by participating in the experiment. For each participant, three rounds were chosen randomly. Based on this, a bonus was given.

Materials and Apparatus

In this research, the Attacker-Defender Game (de Dreu & Gross, 2018) and the Davis Interpersonal Reactivity Index (Davis, 1983) questionnaire was used for data collection.

The Attacker-defender game. Data was collected through the attacker-defender game (de Dreu & Gross, 2018). Participants were randomly assigned to be either an attacker or a defender. Half of the participants played 60 rounds of the attacker-defender game with the innovation option, meaning they had three options to choose from: conflict, innovation and keep. The other half played 60 rounds of the attacker-defender game without the innovation option, meaning they had two options to choose from: conflict and keep. The latter were not included in the research because this research was part of a broader project examining additional research questions. Therefore, additional data was collected that was not

used for this paper. Each participant got 20 monetary units (MU) per round which they divided over either two or three options. MU that were invested, were always wasted. The participants had each round the following options:

The first option was to keep the MU. If the attacker chose to keep the MU, (s)he would keep this amount of MU at the end of the round. If the defender chose to keep the MU, (s)he only got to keep these MU if the attacker invested less in attack than the defender did in defence. The second option was to invest in conflict. The attackers could invest in attack and the defenders in defence. The attacker won the MU of the defender and kept his/her own MU if (s)he allocated more units to attack than the defender allocated to defence. The defender kept his/her MU that were not invested in defence if (s)he allocated more MU into defence than the attacker did in attack but could never win the MU of the attacker. The third option is the innovation option. Both the attacker and the defender could choose the innovation option. If the amount of invested MU reached a certain randomly generated threshold, participants received thirty MU. However, the defender lost its gains for that round if (s)he invested less in defence than the attacker did in attack. The role (attacker or defender) was the independent variable. The investments in conflict, innovation and keep were the dependent variables.

The Davis Interpersonal Reactivity Index (IRI). The IRI is a self-report questionnaire that features several subscales of empathy (Davis, 1983). For this research, only the Perspective-Taking scale (PT) was measured since the other subscales are not relevant for this research. The PT scale measures someone's attempts to see the situation from the perspective of someone else. The PT scale is known to be correlated with measures of interpersonal functioning. A higher PT score is associated with less social dysfunction, higher social competence, higher self-esteem and more selfless interest in others' feelings and reactions (Davis, 1983). All items are rated on a 4-point Likert scale ranging from "1 - Does

not describe me very" well to "4 - Describes me very well". The questionnaire is included in Appendix A. Cognitive Empathy was the moderator in this research.

Procedure

The participants were asked to fill in a questionnaire. They received a link with the online questionnaire. This questionnaire contains The Davis Interpersonal Reactivity Index (IRI) (Davis, 1983) and additional general information such as age, gender, religiosity, income and education. The questionnaire had to be completed at least 24 hours before the experiment. This minimises the chances that the participants would be primed by certain topics of the questionnaire such as cognitive empathy. The IRI (Davis, 1983) and the general information were embedded in a longer questionnaire that includes measures for other lines of inquiry. Additionally, participants got a randomly generated code. They were asked to carefully write this down and bring it with them to the experiment. As a back-up, they also had to generate a personal code which was composed from their birth month and the last three digits of their phone number. This was used to match the data of the questionnaire to the data of the experiment.

Two participants had to participate at the same time. To guarantee anonymity, both participants were placed in separate cubicles so they could not communicate with each other. As the participants arrived in the laboratory at the Faculty of Social Sciences of Leiden University, they were randomly assigned to a cubicle. The participants first had to read and accept the informed consent before the Attacker-Defender Game could start. After the experiment the participants had to fill in their randomly generated code as well as their personal code. Once they were finished, the researchers came to their cubicle to grant their credits and/or money. The whole procedure took 35 to 45 minutes.

Statistical analysis

In this research, a moderation analysis was conducted using Hayes's (2018) PROCESS command, model 1. The moderator was the interval score on the cognitive empathy scale, as measured in the Davis Interpersonal Reactivity Index (Davis, 1983). The independent variable was the role (attacker or defender). The dependent variables were the investments in conflict, innovation and keep. All analyses were checked for possible confounding variables such as gender, age, income, education and religiosity.

Results

The mean score of cognitive empathy was 3.82 (*SD* = .56). These scores were based on a 5-point Likert scale and varied from 2.14 to 4.86. Women scored somewhat higher on cognitive empathy (*M* = 3.86; *SD* = .54) then men (*M* = 3.65; *SD* = .63). Attackers had a mean score of 3.79 (*SD* = .52), defenders had a mean score of 3.85 (*SD* = .60). This shows that there are no a-priory differences. All correlations among the variables were tested, the results are shown in Table 1. This shows i.e. that income is positively correlated to the level of cognitive empathy (*r* = .19; *p* = .04).

Table 1. Mean, Standard Deviations and the Bivariate Correlations Between the Researched Variables

		M	SD	1	2	3	4	5	6	7	8	9
1	Role	-	-	1								
2	Cognitive empathy	3.82	0.56	-.049	1							
3	Conflict	4.81	2.61	-.154	.047	1						
4	Innovation	12.22	2.88	.151	.045	-.797**	1					
5	Keep	2.97	1.76	-.017	-.144	-.178	-.452**	1				
6	Age	21.8	3.33	.034	.088	.088	-.119	.064	1			
7	Gender	-	-	.181	-.151	-.203*	.154	.050	.049	1		
8	Education	-	-	.020	-.013	-.029	-.011	.060	.445**	.073	1	
9	Income	3.63	2.32	-.054	.194*	-.127	.101	.024	-.181	-.019	-.243**	1
10	Religiosity	3.56	1.63	-.050	-.042	.053	-.053	.008	.166	-.194*	.022	.031

*p < .05 level (two-tailed), **p <.01 level (two-tailed)

To examine if the influence of role (attacker of defender) on the investments participants made in conflict (attack or defend), innovation and keep was moderated by the level of cognitive empathy, we used Hayes's (2018) PROCESS command, model 1. It was expected that attackers with higher level of cognitive empathy would invest less in conflict, more in innovation and equal in keep compared to attackers who had a low level of cognitive empathy. Secondly, it was expected that defenders with higher level of cognitive empathy would invest equal in conflict, innovation and keep compared to defenders who had a low level of cognitive empathy.

Table 2. Means and Standard Deviations for the Investments in Conflict, Innovation and Keep Displayed for Attackers and Defenders

	Conflict		Innovation		Keep	
	Mean	SD	Mean	SD	Mean	SD
Attackers	4.40	2.63	12.65	1.97	2.94	1.79
Defenders	5.21	2.55	11.79	2.75	3.00	1.76
Total	4.81	2.61	12.22	2.88	2.97	1.76

The first model examined whether the influence of role on the investments participants made in conflict was moderated by the level of cognitive empathy. This model was not significant (R^2 = .03; $F_{(3, 111)}$ = .97; p = .41). The main effect of role on conflict (b = -.79; SE = .49; t = -1.62; p = .11) and the main effect of cognitive empathy on conflict (b = .19; SE = .44; t = .43; p = .67) were not significant. Also, the interactive effect of role and cognitive empathy on conflict (b = .08; SE = .88; t = .05; p = .96) was not significant. The numbers are shown in Table 2 and illustrated in Figure 1. This indicates that cognitive empathy did not moderate the relationship between role and the investments participants made in conflict.

The second model examined whether the influence of role on the investments participants made in innovation was moderated by the level of cognitive empathy. This model was not significant (R^2 = .03; $F_{(3, 111)}$ = 1.03; p = .38). The main effect of role on innovation (b = .88; SE = .53; t = 1,63; p = .11) and the main effect of cognitive empathy on innovation (b = .24; SE = .49; t = .50; p = .62) were not significant. The interaction effect of role and cognitive empathy on innovation (b = -.42; SE = .97; t = -.43; p = .67) was not significant. The numbers are shown in Table 2 and illustrated in Figure 1. This indicates that cognitive empathy did not moderate the relationship between role and the investments participants made in innovation.

The third model examined whether the influence of role on the investments participants made in the keep option was moderated by the level of cognitive empathy. This model was not significant (R^2 = .02; $F_{(3, 111)}$ = .93; p = .43). The main effect of effect of role

on keep (b = -.08; SE = .33; t = -.26; p = .80) was not significant. Also, the main effect of cognitive empathy on keep was not significant (b = -.43; SE = .30; t = -1,45; p = .15). Despite differences on a descriptive level, there was no significant interaction effect of role and cognitive empathy on keep (b = .37; SE = .59; t = .62; p = .54). The numbers are shown in Table 2 and illustrated in Figure 1. To conclude, this indicates that cognitive empathy did not moderate the relationship between role and the investments participants made in keep.

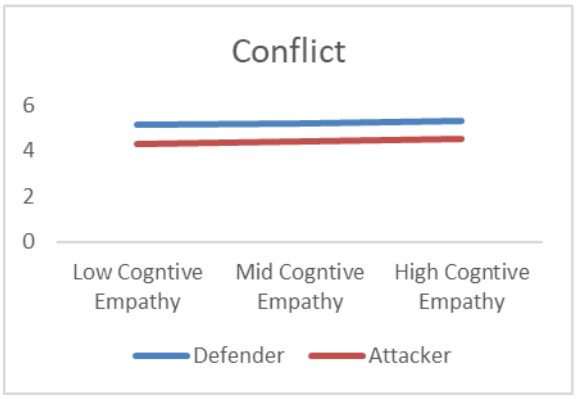

Figure 1. Mean investments in the conflict option by attackers and defenders with different levels of cognitive empathy

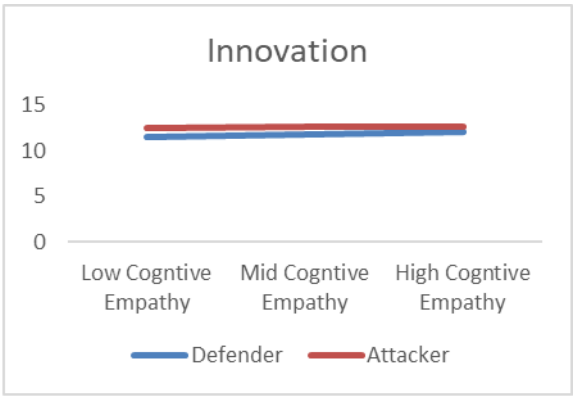

Figure 2. Mean investments in the innovation option by attackers and defenders with different levels of cognitive empathy

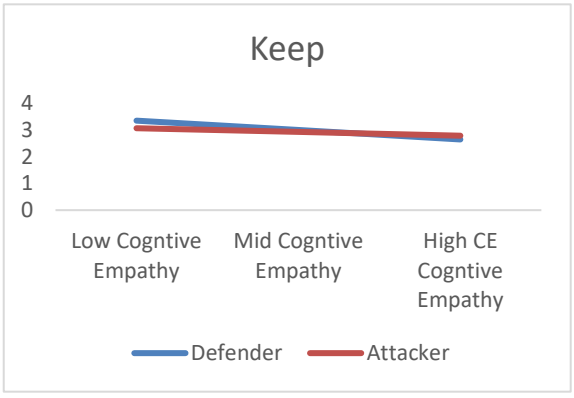

Figure 1. Mean investments in the conflict option by attackers and defenders with different levels of cognitive empathy

In light of these findings, the first hypothesis ‘’Attackers who have a high level of cognitive empathy will invest less in attack, more in innovation and equal in the keep option compared to attackers who have a low level of cognitive empathy’’ cannot be confirmed. The second hypothesis ‘’ Defenders who have a high level of cognitive empathy will invest equal in defence, innovation and equal in the keep option compared to defenders who have a low level of cognitive empathy’’ can partly be confirmed. This research offers no support to the notion that cognitive empathy moderates the relationship between role (attacker or defender) and the investments in conflict, innovation or keep. But there are also no differences between high- and low cognitive empathic defenders in the investments they make in defence, innovation and keep.

Discussion

In the current study, I researched if cognitive empathy moderated the relationship between role (attacker or defender) and the investments individuals made in conflict, innovation or keep in an asymmetrical conflict. The results of this study did not implicate a relationship. Neither role nor cognitive empathy correlated with the investments individuals made. Both were not significant predictors for the investments in conflict, innovation or keep. The results have been controlled for age, gender, education, income and religiosity. None of these influenced the relationship between role and the investments participants made. This suggests that cognitive empathy is not a moderator in the relationship between role and the investments individuals make in conflict, innovation or keep in an asymmetrical conflict.

Contrary to my predictions, I found no evidence supporting the first hypothesis ‘’Attackers who have a high level of cognitive empathy will invest less in attack, more in innovation and less in keep compared to attackers who have a low level of cognitive empathy’’. It seems that taking the perspective of the opponent does not moderate the relationship between role and the investments an attacker makes in an asymmetric conflict. This implies that attackers who score high on cognitive empathy, do not take the situation into account more than attackers who score low on cognitive empathy. It is possible that this is because the participants were completely anonymous during the whole procedure. Ariely, Bracha and Meier (2009) state that individuals are driven by image motivation. This is the motivation to only behave prosocial if other people can see their behaviour to signal that they are ‘good’. Different researchers (e.g. Adreoni & Petrie, 2004; Dana, Cain & Dawes, 2006) also found that people behave less prosocial when they are acting anonymous compared to when they are in a public setting. After all, people barely donate to charities anonymously because nobody will know that they ‘did good’ (Glazer & Konrad, 1996). In other words, it is possible that individuals with high- and low cognitive empathy do not behave differently from

each other because nobody would know whether they used aggressive or non-aggressive means to increase or protect their gains.

Another possible reason for the non-significant results is the fact that there was money at stake. Achtziger, Alos-Ferrer and Wagner (2015) discuss that monetary awards are automatically implemented. This means that when people are focused on increasing their gains, they are more likely to behave selfish. In the attacker-defender game, used in the current experiment, the attackers and the defenders had to increase or protect their gains each round. It could be possible that the mechanism that Achtziger et al. (2015) described is stronger than the effects of cognitive empathy. This could account for the similarities in the investments in conflict, innovation and keep from the high- and low cognitive empathic individuals.

Because defence is mostly fast and impulsive (e.g. de Dreu et al., 2014; Nelson & Trainor, 2007; de Dreu et al., 2011), they are likely to be the same for all individuals with different levels of cognitive empathy. I did not find any differences in the investments defenders made. This could support the hypothesis *'' defenders who have a high level of cognitive empathy will invest equal in defence, innovation and keep compared to defenders who have a low level of cognitive empathy''*. However, because there were no significant results found in this research, I cannot draw any conclusions. More research is needed to confirm this hypothesis.

Limitations

There are several demographic limitations concerning the participants. This could have negatively influenced the generalizability of this study. First of all, 80.9% of the participants were female. Croson and Gneezy (2009) found that there are often systematic gender differences in economic experiments such as risk taking and trust. Men tend to take more risks but are also more trusting than females. This could have influenced the decisions

the participants made. For example, innovation is a risky and uncertain option. If males are more willing to takes risks, they are more likely to choose innovation, especially if they trust their opponent not to attack them. Additionally, men have more testosterone which is negatively correlated to cognitive empathy (Wuying, Jiamei, Lianqi & Wenyi, 2014). Because of this, men tend to have lower scores on cognitive empathy then females. The effects of cognitive empathy could have been weighted out because of the skewed data. Although I did not find any gender differences in the collected data, this could be because only 19.9% were male and thus underrepresented.

Secondly, the majority of the participants had a higher income than average and were high educated. Because the recruitment mainly took place at the Faculty Building of Social Sciences of Leiden University, the majority of the participants were students. Henrich, Heine and Norenzayan (2010) described that WEIRD (Western, Educated, Industrialized, Rich and Democratic) societies are not representative populations for generalization about human behaviour. The majority of the participants used in the current research belonged to the WEIRD society, which are frequent outliers compared to other societies. Because conflicts are different in every society, this specific WEIRD society is not representative for other societies. Additionally, the participants were mainly university students who have participated in economic decision making studies before. They might have known what the aim of the study was which could have influenced their decisions as well. However, this was not tested. Because of the above mentioned reasons, generalization of these results must be avoided.

Besides the demographic limitations, there can be a concern about the measurement of cognitive empathy. To measure cognitive empathy, The Davis Interpersonal Reactivity Index (IRI) (Davis, 1983) was used. This is a self-report questionnaire. Konrath (in press) notes that especially the results on the perspective taking scale, which was used in this research, can be affected by social desirability and self-perception bias. This means that it is

possible that the given answers to this questionnaire do not completely reflect the truth. Someone could consider himself/herself high on cognitive empathy while in reality they are not. This could blur the effect of the moderator cognitive empathy on the relationship between role and the investments participants made in conflict, innovation and keep. Additionally, the IRI (Davis, 1983) measures empathy on a trait level. However, the perspective-taking scale which was used in this research, tends to be changeable depending on the situation. Behaviours associated with cognitive empathy are more likely to arise when the interaction is on a regular basis (e.g. Levenson & Ruef, 1992), which was not the case in this experiment. It could have been that some participants were actually high on the cognitive empathy trait but did not show associated behaviours during the experiment.

Recommendations for future research

De Dreu et al. (2018) found that individuals with a high concern for others less often attacked their opponents. They used a broad term of empathy in this research. If cognitive empathy does not contribute to this relationship, it is worth researching which aspect of empathy is accountable for the relationship de Dreu et al., (2018) found. The affective domain of empathy was not researched in the current study. The affective domain relates to the competence of experiencing the feelings of another person (Smith, 2006). It is possible that just seeing the situation from the perspective of another person is not enough, they would need to experience the feelings of the other person as well. Konrath (in press) states that the affective domain correlates with prosocial behavioural outcomes. This would suggest that individuals with a high affective empathy would act more prosocial in a asymmetric conflict and thus invest less in conflict and more in innovation. This effect might even be stronger when interacting with a high level of cognitive empathy. Thus, I recommend to research if the relationship between role (attacker of defender) and the investments individuals make in an

asymmetric conflict is moderated by affective empathy for people with high levels of cognitive empathy.

Secondly, the current study was on an individual level. However, many conflicts are between groups instead of individuals. Humans function very well within groups (Smith, 2006). The Social Identity Theory (Tajfel. 1979) states that individuals derive their identity from the group they belong to. If this particular in-group is salient, they will show more empathy and altruistic behaviour towards this group. Burke, Martens and Faucher (2010) agree with this statement. They argue that a conflict increases in-group favouritism and out-group derogation. This would imply that individuals with a high level of cognitive empathy would mainly be empathic towards their fellow group members. It is worth to mention that earlier research shows that the effect of cognitive empathy is dependent on the level of identification with the salient in-group (Tarrant, Calitri, & Weston, 2012). This means that the expected effect could be present in case of a high identification but absent in case of a low identification with the salient in-group. I recommend to investigate the effect on cognitive empathy further on a group-level with a high salient ingroup.

To conclude, I did not find any evidence suggesting that cognitive empathy moderates the relationship between role (attacker or defender) and the investments they made in conflict, innovation or keep. To go back to the example from the introduction, there is no evidence that cognitive empathy would influence the choices Joyce and John would make in their conflict. Joyce would still go to her manager if she would see the situation from the perspective of John. John would also still defend himself against the attack of Joyce if he would see the situation from the perspective of Joyce.

References

Ariely, D., Bracha, A., & Meier, S. (2009). Doing good or doing well? Image motivation and monetary incentives in behaving prosocially. *American Economic Review*, *99*, 544 55.

Batson, C. D., Klein, T. R., Highberger, L., & Shaw, L. L. (1995). Immorality from empathy-induced altruism: When compassion and justice conflict. *Journal of Personality and Social Psychology, 68,* 1042-1054

Björkqvist, K., Österman, K., & Kaukiainen, A. (2000). Social intelligence− empathy=aggression? *Journal of Aggression and Violent Behavior*, 5, 191-200.

Böhm R., Rusch, H., & Güreck, O. (2016). What maks people go to war? Defensive intentions motivate retaliatory and preemptive intergroup aggression. *Journal of Evolution and Human Behavior*, *37*, 29 34.

Böhm, R., Rusch, H., & Gürerk, Ö. (2016). What makes people go to war? Defensive intentions motivate retaliatory and pre-emptive intergroup aggression. *Journal of Evolution and Human Behavior*, *37*, 29-34.

Burke, B. L., Martens, A., & Faucher, E. H. (2010). Two decades of terror management theory: A meta-analysis of mortality salience research. *Personality and Social Psychology Review*, *14,* 155-195.

Chambers, J.R., Baron, R.S., & Inman, M.L. (2006). Misperceptions in intergroup conflict. *Journal of Psychological Science, 17*, 38 – 45.

Chen, W., Lu, J., Liu, L., & Lin, W. (2014). Gender differences of empathy. *Advances in Psychological Science, 22*, 1423-1434.

Chowdhury, S. M., Jeon, J. Y., & Ramalingam, A. (2018). Property rights and loss aversion in contests. *Journal of Economic Inquiry, 56,* 1492-1511.

Coombs, C.H., & Avrunin, G.S. (1988). *The Structure of Conflict.* New York: Lawrence Erlbaum.

Croson, R., & Gneezy, U. (2009). Gender differences in preferences. *Journal of Economic Literature,* 47, 1-27.

Dana, J., Cain, D. M., & Dawes, R. M. (2006). What you don't know won't hurt me: Costly (but quiet) exit in dictator games. *Organizational Behavior and Human Decision Processes, 100,* 193-201.

Davis, M. H. (1983). Measuring individual differences in empathy: Evidence for a multidimensional approach. *Journal of Personality and Social Psychology*, *44*, 113.

Dawkins, R., & Krebs, J. R. (1979). Arms races between and within species. *Proc. R. Soc. Lond. B, 205,* 489-511.

De Corte, K., Buysse, A., Verhofstadt, L. L., Roeyers, H., Ponnet, K., & Davis, M. H. (2007). Measuring empathic tendencies: Reliability and validity of the Dutch version of the Interpersonal Reactivity Index. *Psychologica Belgica*, *47*, 235-260.

De Dreu, C. K., Giacomantonio, M., Giffin, M. R., & Vecchiato, G. (2018). Psychological constraints on aggressive predation in economic contests. *Journal of Experimental Psychology: General*.

De Dreu, C. K., & Gross, J. (2018). Revisiting the form and function of conflict: neurobiological, psychological and cultural mechanisms for attack and defense within and between groups. *Behavioral and brain sciences,* 1-76.

De Dreu, C. K., Balliet, D., & Halevy, N. (2014). Parochial cooperation in humans: forms and functions of self-sacrifice in intergroup conflict. *Journal of Advances in Motivation Science,* 1, 1-47.

De Dreu, C. K., Greer, L. L., Handgraaf, M. J., Shalvi, S., Van Kleef, G. A., Baas,

M., ... & Feith, S. W. (2010). The neuropeptide oxytocin regulates parochial altruism in intergroup conflict among humans. *Journal of Science, 328,* 1408-1411.

De Dreu, C.K.W., Kret, M.E., & Sligte, I.G. (2016). Modulating prefrontal control in humans reveals distinct pathways to competitive success and collective waste. *Social Cognitive and Affective Neuroscience, 11,* 1236 – 1244.

De Dreu, C.K.W., Scholte H.S., Van Winden, F.A.A.M., & Ridderinkhof, K.R. (2015). Oxytocin tempers calculated greed but not impulsive defense in predator-prey contests. *Social Cognitive and Affective Neuroscience, 5*, 721-728.

Decety, J., & Cowell, J.M. (2014). The complex relation between morality and empathy. *Trends in Cognitive Sciences, 18,* 337 – 339.

Duan, C., & Hill, C. E. (1996). The current state of empathy research. *Journal of Counseling Psychology, 43,* 261.

Eisenberg, N., & Strayer, J. (1987). Critical issues in the study of empathy. *Empathy and its development*, 3-13.

Fry, D. P., & Söderberg, P. (2013). Lethal aggression in mobile forager bands and implications for the origins of war. *Science, 341,* 270-273.

Glazer, A., & Konrad, K. A. (1996). A signaling explanation for charity. *The American Economic Review, 86,* 1019-1028.

Halevy, N., Bornstein, G., & Sagiv, L. (2008). "In-group love" and "out-group hate" as motives for individual participation in intergroup conflict: A new game paradigm. *Psychological Science, 19*, 405-411.

Henrich, J., Heine, S. J., & Norenzayan, A. (2010). The weirdest people in the world?. *Behavioral and brain sciences, 33,* 61-83.

James, A., & Petrie, R., (2004). Public Goods Experiments Without Confidentiality: A Glimpse into Fund-Raising. *Journal of Public Economics*, 88, 1605-23.

Kahneman, D., Knetsch, J. L., & Thaler, R. H. (1991). Anomalies: The endowment effect, loss aversion, and status quo bias. *Journal of Economic perspectives*, *5*, 193-206.

Kahneman, D., Knetsch, J.L., & Thaler, R.H. (1991). The endowment effect, loss aversion, and the status quo bias. *Journal of Economic Perspectives, 5*, 193-206.

Konrath, S. (in press). A critical analysis of the Interpersonal Reactivity Index. *MedEdPORTAL Directory and Repository of Educational Assessment Measures (DREAM).*

Lamm, C., Decety, J., & Singer, T. (2011). Meta-analytic evidence for common and distinct neural networks associated with directly experienced pain and empathy for pain. *Neuroimage, 54*, 2492-2502.

Levenson R. W.; Ruef A. M. (1992). Empathy: a physiological substrate. *Journal of Personality and Social Psychology*. 63, 234–246.

Nelson, R. J., & Trainor, B. C. (2007). Neural mechanisms of aggression. *Nature Reviews Neuroscience, 8*, 536.

Rai, T.S., Valdesolo, P., & Graham, J. (2017). Dehumanization increases instrumental violence, but not moral violence. *Proceedings of the National Academy of Sciences*, *114*, 8511-8516.

Sapolsky, R.M., Romero, L.M., & Munck, A.U. (2000). How do glucocorticoids influence stress responses? Integrating permissive, suppressive, stimulatory, and preparative actions. *Endocrine Reviews, 21*, 55-89.

Smith, A. (2006). Cognitive empathy and emotional empathy in human behavior and evolution. *The Psychological Record, 56*, 3-21.

Velden, F.S., Van Dijk, E., & Feith, S.W.W. (2010). The neuropeptide oxytocin regulates parochial altruism in intergroup conflict among humans. *Science, 328*, 1408 – 1411

Weisel, O., & Böhm, R. (2015). “Ingroup love” and “outgroup hate” in intergroup conflict between natural groups. *Journal of Experimental Social Psychology*, *60*, 110-120.

Appendix A

Interpersonal Reactivity (Davis, 1983)

Please indicate the extent that each statement describes you, using the following scale:

0 1 2 3 4

Does not describe me well Describe me very well

Perspective-Taking Scale

1. Before criticizing somebody, I try to imagine how I would feel if I were in their place
2. If I'm sure I'm right about something, I don't waste much time listening to other people's arguments *
3. I sometimes try to understand my friends better by imagining how things look from their perspective
4. I believe that there are two side to every question and try to look at them both
5. I sometimes find it difficult to see things from the other person's point of view*
6. I try to look at everybody's side of a disagreement before I make a decision
7. When I'm upset at someone, I usually try to 'put myself in their shoes' for a while

Note: statements with * has to be revised