RECIPROCAL ANGER, THREAT, OR TRACKING: USING INTENSITY OF ANGER TO DISENTANGLE THREE COMMON RESPONSES TO ANGRY NEGOTIATORS IN DISTRIBUTIVE AND INTEGRATIVE NEGOTIATIONS

by

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STATEMENT OF DISSERTATION APPROVAL

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ABSTRACT

Expressing anger in negotiation can elicit concessions from one's counterpart, often because angry negotiators are perceived as "tough." However, "toughness" has been defined as both "having tough negotiation limits" and "behaving in threatening or dominating ways." This dissertation explores anger intensity variation to demonstrate the circumstances under which angry negotiators are perceived as having tough limits, versus when they are perceived as threatening, and when their counterparts are inclined to respond with reciprocal anger.

Study 1 demonstrates that low- and medium-intensity anger elicit greater concessions than no- or high-anger conditions and that this effect is mediated by perceptions of threat. I also test in Study 2 the effects of anger intensity on Pareto efficiency in an integrative, dyadic negotiation. However, hypotheses about these effects were not supported. I discuss possible design factors that contributed to the null results, as well as future directions for this area of research. The paper contributes to emotion and negotiation theory by distinguishing clearly between threat and tracking (previously both referred to as "toughness") and measuring them simultaneously, as well as by conducting the first study of anger intensity's effect on integrative negotiation outcomes.

For Melissa

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INTRODUCTION

Scholars have studied the antecedents and consequences of anger expression in negotiation for many years (for reviews, see Denson & Fabiansson, 2011; Hunsaker, 2017; Van Kleef, 2010; Van Kleef & Sinaceur, 2013). Some of these findings suggest that anger can be expressed strategically during negotiation to get greater concessions from one's counterpart (e.g., Belkin, Kurtzberg, & Naquin, 2013; Butt & Choi, 2006; Lelieveld, Van Dijk, Van Beest, Steinel, & Van Kleef, 2011; Sinaceur & Tiedens, 2006; Van Kleef, De Dreu, & Manstead, 2004a; 2004b; Wang, Northcraft, & Van Kleef, 2012). This concessionary behavior often occurs because the anger recipient perceives the anger expresser as "tough" (Adam & Brett, 2015; Adam & Shirako, 2013; Sinaceur & Tiedens, 2006; Van Kleef & De Dreu, 2010; Van Kleef, De Dreu, & Manstead, 2004a). However, multiple definitions of "toughness" persist in the literature and are not well differentiated in work on anger in negotiation.

This dissertation will disentangle the two most common definitions of perceptions of toughness (perceptions that the other party is reaching their negotiation limits, versus perceptions of threat). I use varying levels of anger intensity to demonstrate that these two different definitions are distinct and may not always operate in the same situations. Using both computer-mediated and face-to-face negotiation studies, I test how both definitions of toughness, as well as reciprocal anger, relate to negotiation outcomes. I investigate both distributive and integrative negotiation contexts, since these mechanisms may lead to different outcomes in each. Specifically, I test the effects of anger intensity

on concessionary behavior in distributive negotiations and Pareto efficiency in integrative negotiation contexts. I conclude with a discussion about the implications of this work for theory on toughness, anger intensity, and interpersonal responses to emotion expression.

TOUGHNESS

The idea of "toughness" in the negotiation context has been present in the literature for decades. The earliest references define toughness in behavioral terms, where a tough negotiator is one who makes small concessions or never concedes at all (Esser & Komorita, 1975; Komorita & Esser, 1975). Smith, Pruitt, and Carnevale (1982) argue that "the other party is considered *tough* to the extent that he or she starts with an extreme demand and concedes slowly" (p. 876). These scholars measure perceptions of toughness by asking negotiators "how yielding" their partner was during the negotiation.

In recent years, however, scholars have argued that (actual concessionary behavior aside) angry negotiators are simply perceived as being tough, and these perceptions lead their counterparts to make greater concessions during the negotiation (Adam & Brett, 2015; Adam & Shirako, 2013; Sinaceur & Tiedens, 2006; Van Kleef & De Dreu, 2010; Van Kleef, De Dreu, & Manstead, 2004a). This more recent work has departed from the idea of perceptions of toughness as the extent to which the other party was "yielding" (Smith et al., 1982) and instead has introduced other definitions of this construct, which can broadly be categorized as either "threat" or "tracking." Both of these newer conceptualizations of toughness have been found to mediate the relationship between anger expression and counterpart concessions, but these two definitions are so theoretically distinct that it raises the question, "Under which circumstances is the threat mechanism operative and under which circumstances is the tracking mechanism

operative in response to anger expressions?" I will first distinguish between and explain these two conceptualizations of toughness. I will then explain how examining different levels of anger intensity may help us to understand when each is operative in negotiations.

Tracking

The first conceptualization of toughness in the literature is the idea that when a negotiator expresses anger, the anger recipient assumes that the anger is a result of the anger expresser getting closer to his/her reservation point and not having much more room to make concessions (Van Kleef & De Dreu, 2010; Van Kleef et al., 2004a). They may be expressing anger because they have little left to give and believe that the counterpart is standing in the way of what they want, so they become angry. Indeed, Van Kleef and De Dreu (2010) argue that "negotiators with an angry partner tend to infer that the other has tough limits." It makes sense, then, that this type of perception of toughness would lead an anger recipient to make greater concessions to avoid impasse. This idea is almost identical to Pruitt's (2013) definition of *tracking*, which occurs when "the bargainer is tracking the other party's expected ultimate demand" (p. 21). Tracking is a cognitive process, wherein the negotiator tries to ascertain her counterpart's reservation point and then make the necessary concessions to avoid impasse.

Tracking is typically measured by asking negotiators questions like, "What do you think is the best price you can expect from the buyer?" (Yukl, 1974, p. 231), or "What do you think was the buyer's lowest acceptable level of agreement?" (Van Kleef et al., 2004a, p. 64), or "How far do you think the buyer would be prepared to go?" (Van

Kleef & De Dreu, 2010, p. 755).

The Emotion as Social Information (EASI) theory explains that emotions can lead to "inferential" processes, such as tracking, where the recipient uses the emotion expression as information about the counterpart and then responds accordingly (Van Kleef, 2014). Tracking is this type of cognitive, rational response to anger expression that leads to concessions for strategic and logical purposes. Such a rational response is most likely to occur when the individual has the time and cognitive resources to process the meaning of the anger expression (Van Kleef, De Dreu, & Manstead, 2004b).

Threat

A second conceptualization of perceptions of toughness is the idea that negotiators can feel *threatened* when their counterpart expresses anger (e.g., Adam & Shirako, 2013; Sinaceur, Van Kleef, Neale, Adam, & Haag, 2011). Angry negotiators convey the feeling that if their counterpart does not begin cooperating, the conflict will escalate (Adam & Brett, 2015), possibly resulting in some sort of aggression, be it physical or verbal. Feeling threatened leads to the emotion of fear (Gray, 1987). Fear is well known as a complementary emotion to anger (Dimberg & Öhman, 1996), in part because anger is associated with aggression (Averill, 1982).

Negotiators who experience fear as a result of their counterpart's anger expression are still likely to concede (Lelieveld et al., 2011), but these concessions would be the result of the threat of conflict escalation and the associated emotion of fear, which is markedly different than the more nonemotional, cognitive behavior of "tracking" the counterpart's reservation point and making concessions to avoid impasse. Scholars who

conceptualize toughness as something closer to “threatening” typically measure perceptions of toughness by asking the anger recipient how “tough,” “threatening,” and “dominant” the anger expresser was (Adam & Brett, 2015; Adam & Shirako, 2013; Sinaceur & Tiedens, 2006).

RECIPROCAL ANGER

In addition to tracking and threat, expressions of anger have been shown to lead to reciprocal anger in some cases (Lelieveld, Van Dijk, Van Beest, & Van Kleef, 2012). The Dual-Threshold Model (DTM) of anger explains that sometimes anger can cross an "impropriety threshold" and be viewed as inappropriate (Geddes & Callister, 2007). When anger is viewed as inappropriate, observers or recipients of the anger may direct their efforts "toward…reprimanding the angry individual" (Geddes & Callister, 2007, p. 733), often through punishment and sanctions. The Emotion as Social Information (EASI) theory also supports this idea, arguing that when anger is viewed as inappropriate, reciprocal anger is the common response, rather than submissiveness (Van Kleef, 2014). This type of emotional response would lead to *fewer* concessions in response to anger expression—directly opposite of the behavioral response when tracking or threat are at play. EASI terms this type of response a "symmetrical" response, because a negative emotion is met with negative behavior (withholding concessions).

As mentioned in the discussion about threat, anger expression can lead others to experience fear because of anger's association with aggressiveness. So one may reasonably expect that higher intensity anger expressions would only escalate feelings of fear because of the likelihood that individuals who are in a rage may become aggressive. This, in the negotiation context, would lead to increased concessions, rather than decreased concessions. The Dual-Threshold Model of anger acknowledges that the

precise point at which anger crosses the impropriety threshold and begins to backfire can be different in different contexts (Geddes & Callister, 2007). DTM suggests that factors such as the status or legitimacy of the anger expresser, the contextual norms for anger expression, and even the outgroup/ingroup status of the expresser can all affect whether or not an anger expression is perceived as appropriate or inappropriate. One could conceive of a situation where a negotiator is so enraged and holds such power over his counterpart that the counterpart simply cowers and acquiesces. Although these situations may exist in the workplace, such levels of rage and intimidation are unlikely to be replicated in a laboratory environment. The materials included in the studies below have been used by other scholars, and the high-intensity anger manipulations have been perceived by participants, on average, to be inappropriate expressions of anger that elicit fewer concessions than other conditions.

ANGER INTENSITY

Most of the research to date on anger in negotiation has treated anger as a binary variable—either present or absent during the negotiation. A binary treatment of anger is practical for the design of experimental studies but ignores our understanding of anger as a dynamic emotion that can vary in intensity of expression "from slight irritation or annoyance to rage or fury" (Ekman & Friesen, 2003, p. 81). The literature on emotion as a whole has largely neglected to investigate levels of emotion intensity (Laukka, Juslin, & Bresin, 2005; Van Kleef & Sinaceur, 2013) (for recent exceptions outside of the negotiation context, see Gibson, Schweitzer, Callister, & Gray, 2009; Stickney & Geddes, 2014; 2016). Although some studies have measured the level of anger expression during negotiation from the recipient's point of view (e.g., Pietroni, Van Kleef, De Dreu, & Pagliaro, 2008; Sinaceur & Tiedens, 2006; Van Kleef et al., 2004a; Van Kleef, De Dreu, Pietroni, & Manstead, 2006), only one paper to date has actually manipulated levels of anger expression as an independent variable and investigated the effects of those levels of intensity on negotiation outcomes (Adam & Brett, 2018).

Adam and Brett (2018) found that, consistent with the above theoretical discussion, low- and medium-intensity anger expression leads to concessionary behavior by the anger recipient, but high-intensity anger leads to perceptions that the anger expression is inappropriate and therefore leads to fewer concessions. Additionally, these scholars combined the low- and medium-intensity anger conditions and ran a mediation

analysis that suggested that perceptions of toughness mediated the relationship between those levels of anger expression and concessionary behavior. Their measure of perceptions of toughness was more in line with the "threat" conceptualization discussed above, since it asked individuals to rate the extent to which they perceived their negotiation partner as "tough" and "threatening." The idea of tracking was not represented in their work, nor was the idea of reciprocal anger.

Like Adam and Brett (2018), I seek to investigate different intensities of anger and their effects on concessionary behavior, but I differentiate between the "tracking" and "threat" conceptualizations of toughness in my studies, and I directly measure reciprocal anger. I predicted that low-intensity anger displays would result in tracking behavior from one's counterpart and would lead to more concessionary behavior than when no anger is present. This cognitive, rational path would be possible because the anger would not have reached a level of intensity that incites feelings of threat or fear. I also intended to replicate their finding that medium-intensity anger leads to feelings of threat, which are associated with fear, and that this affective reactionary path results in more concessionary behavior than when no anger is present. Finally, I predicted that high-intensity anger, which should be perceived as inappropriate, would lead to reciprocal anger and subsequently to fewer concessions than the medium- and low-intensity anger conditions (see Figure 1).

- H1a: Low-intensity anger expression will lead one's counterpart to make more concessions than when anger is absent.
- H1b: The effect of low-intensity anger on concessions will be mediated by tracking.

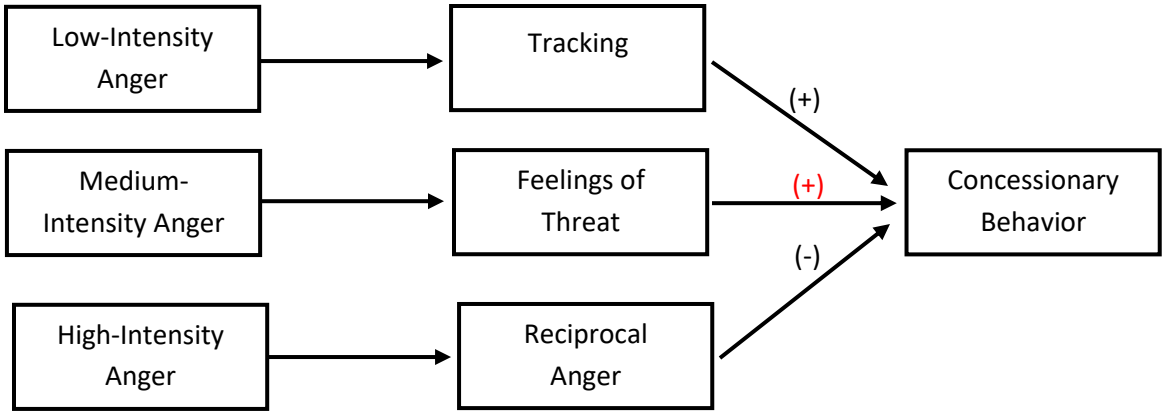


Figure 1. *Distributive* Negotiation Context Predictions

- H2a: Medium-intensity anger expression will lead one's counterpart to make more concessions than when anger is absent.
- H2b: The effect of medium-intensity anger on concessions will be mediated by feelings of threat.
- H3a: High-intensity anger expression will lead one's counterpart to engage in less concessionary behavior than in medium- and low-intensity anger conditions.
- H3b: The effect of high-intensity anger on concessionary behavior will be mediated by reciprocal anger.

INTEGRATIVE BEHAVIOR

Up to this point, I have discussed only concessionary behavior and distributive outcomes. I did this for the sake of organization and clarity in the theoretical arguments, but now I turn our attention to integrative behavior and outcomes. To date, no studies have been published that examined the effects of intensity of anger on integrative behavior and outcomes such as Pareto efficiency. However, some scholars have examined the effect of simple anger expression on integrative behavior. For instance, in a face-to-face negotiation study, Liu (2009) found that angry negotiators are more likely to use distributive negotiation tactics (e.g., position statements) and less likely to engage in integrative behavior (e.g., logrolling). Sinaceur and Tiedens (2006) found that anger did not increase value creation in dyadic negotiations. However, other studies have demonstrated that anger directed at certain issues in the negotiation can give the anger recipient powerful cues about which issues are important to a counterpart and can therefore increase integrative offers (Pietroni et al., 2008).

In line with these results and with the previous discussion about low-intensity anger and tracking, I predicted that low-intensity anger would lead negotiators to engage in tracking and estimate the limits of their negotiation partners. Because of the perception that their counterparts are reaching their reservation points, anger recipients would be motivated to find out more about their counterpart's needs and desires so that they could meet those needs and avoid impasse. This motivation would lead to more information

sharing between the counterparts. Such information sharing would help dyads in the low-anger condition reach more Pareto-efficient outcomes than dyads in no-anger negotiation conditions.

Conversely, high-intensity anger that leads to reciprocal anger would demotivate negotiators from sharing information about their priorities, which would lead them to less Pareto-efficient outcomes than low-intensity-anger dyads. This is because anger deemed inappropriate leads to negative impressions of one's counterpart (Van Kleef et al., 2012) and a focus on sanctioning the inappropriate anger expression (Geddes & Callister, 2007). This prediction is also consistent with the distributive prediction above—that high-intensity anger would lead to lower concessions from one's counterpart and, therefore, worse distributive outcomes for the angry negotiator.

As discussed above, I predicted that in distributive negotiation contexts, medium-intensity anger would lead to concession through the mediator of threat. These concessions would mean a better deal for the angry negotiator. However, I predicted that the opposite result will occur in an integrative context. When medium-level anger is expressed, although it may lead to concessions, it would not result in more Pareto-efficient outcomes for the dyad, simply because the concessions occur as a response to threat and fear, rather than as a response to tracking. When threat is present, I predicted that anger recipients would make concessions but would not be motivated to engage in information sharing, which is necessary for reaching optimal integrative agreements. Rather, these anger recipients would want to concede and end the negotiation as quickly as possible. Therefore, although medium-level anger is predicted to lead to better distributive negotiation outcomes for the anger expresser, it will lead to worse integrative

outcomes for the anger expresser. This leads to the following hypotheses, as represented in Figure 2:

- H4a: Low-intensity anger expression will lead to greater Pareto efficiency than when anger is not present.
- H4b: The effect of low-intensity anger on Pareto efficiency will be mediated by tracking.
- H5a: Medium-intensity anger expression will lead to lower Pareto efficiency than in the low-intensity anger condition.
- H5b: The effect of medium-intensity anger on Pareto efficiency will be mediated by feelings of threat.
- H6a: High-intensity anger expression will lead to less Pareto efficiency than in the low-intensity anger condition.
- H6b: The effect of high-intensity anger on Pareto efficiency will be mediated by reciprocal anger.

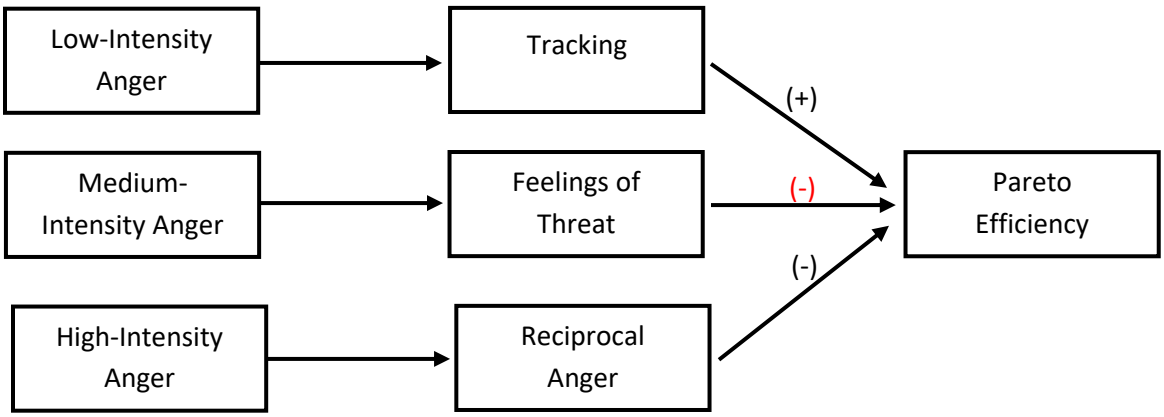


Figure 2. *Integrative* Negotiation Context Predictions

PILOT STUDY

I began by conducting a pilot test of my anger intensity manipulation statements, which I used in Studies 1 and 2. These statements were also previously pretested by Adam and Brett (2018) (for full statements, see Appendix A). I replicated their pretests, just to confirm that these statements were perceived as realistic and also conveyed the correct levels of anger intensity. A preregistration of all sample sizes, predictions, and procedures can be found on the Open Science Framework at https://osf.io/ugz3f/.

I recruited 159 participants on Amazon's Mechanical Turk to complete the pretest. This was based on an a priori power calculation, where effect size is $f = 0.25$, alpha = .05, power is at 80%, and there are three groups being compared using ANOVA. Participants were randomly assigned to view either the high-intensity statements, medium-intensity statements, or low-intensity statements. Each participant was asked to imagine that they are negotiating with a partner via the Internet and have received the following statement as a response during the negotiation (for full prompt, see Appendix A). Each participant then viewed the three statements for their assigned level of intensity and were asked five questions regarding each statement (for full questions, see Appendix B). These questions asked how angry, irritated, frustrated, or annoyed their partner seemed, as well as how realistic the statement seemed for a negotiation context. Each of these questions was on a 7-point Likert scale.

I averaged the responses (within condition) across the angry / irritated / frustrated / annoyed questions to create an average score of perceived anger ($\alpha = 0.96$). I then

compared these scores between conditions using ANOVA and found that high-intensity anger statements (M = 6.11, SD = 0.79) were perceived to be significantly angrier than medium-intensity anger statements (M = 5.17, SD = 0.97) [$F(1, 102) = 29.00$, $p < .001$, $\eta_p^2 = .221$], which were perceived to be significantly angrier than low-intensity anger statements (M = 4.06, SD = 1.08) [$F(1, 104) = 30.94$, $p < .001$, $\eta_p^2 = .230$]. I also looked at the average "realism" score in each condition and found that low (M = 4.05, SD = 1.48), medium (M = 4.29, SD = 1.34), and high (M = 3.75, SD = 1.28) conditions did not differ significantly ($F(2,156) = 2.02$, $p = .136$). With these findings, I was confident in proceeding to Studies 1 and 2 with these pretested statements as anger manipulations.

STUDY 1

Sample

Study 1 tested Hypotheses 1a, 1b, 2a, 2b, 3a, and 3b—the hypotheses about the effects of intensity on concessionary behavior. Four hundred participants were recruited from Amazon's Mechanical Turk (MTurk) to participate in the study. I used the MTurk qualifications function to ensure that none of these workers had participated in the pilot test. An a priori power analysis, with an alpha of .05, 80% power, four conditions, and an effect size of $f = 0.175$ suggested a sample size of n=360 participants[1]. However, I decided to increase my desired sample size by an additional 40 participants to 400 total participants for the following reasons.

The study included an attention check (explained below). Failing the attention check resulted in exclusion from the study. Additionally, using Qualtrics software to replicate as closely as possible the work by Adam and Brett (2018) meant that there were some programming constraints to account for. There were occasional situations when participants made offers to which the computer's counter offers were not rational. I followed the protocol laid forth in early drafts of Adam and Brett's work and excluded

[1] I typically use $f = .25$ as my standard effect size prediction before running a study. However, because this was an online study and I could increase the sample size with minimal resources, and because I knew that Study 2 would of necessity be a smaller sample size, I wanted to estimate a smaller effect size and increase the sample size in the hopes of finding the clearest possible results.

any of these nonsensical negotiation instances from the data set, as preregistered. I also planned to exclude individuals who correctly identified the main hypotheses in the open-ended suspicion question. I tested the hypotheses with and without excluded participants and any differences in results are reported below. In order to account for the above exclusions, I increased the suggested sample size from 360 to 400 participants. MTurk participants were also limited geographically to the United States and were required to have a 98% approval rating to participate in the study. All of these specifications and exclusions were preregistered on the Open Science Framework. I also was forced to exclude eight individuals who did not make real offers (wrote numbers that were not actually options in the case) and whose data could therefore not be analyzed. One hundred and eighteen participants were excluded in total—90 for programming challenges (explained above), 20 for failing the attention check, and 8 for not making real offers), bringing the sample size to $n = 282$.

Procedure

The procedure followed the Adam and Brett (2018) paper as closely as possible, using the same procedures and manipulations. This is important because I need to be able to directly compare my results with theirs, since I am claiming to unpack the "toughness" mechanism that they used, and because I am claiming to test intensity's effect on integrative outcomes and need to compare those outcomes to their distributive findings.

After consenting to participate in the study, participants were divided into four conditions (control, low-intensity anger, medium-intensity anger, and high-intensity anger). They were asked to engage in a negotiation exercise and waited while a

negotiation partner was ostensibly found. They were informed that they had been randomly selected to receive information about their counterpart's negotiation intentions, but that they did not need to share their intentions with their counterpart. Each participant acted as the seller in a three-issue negotiation about cellular phones. The negotiation exercise was taken from previous research (Adam & Brett, 2018; Van Kleef et al., 2004a), and participants were told that based on their performance, they may be eligible for incentive pay. (For all exercises and manipulations, see Appendix A. For all mediator and dependent-variable scales, see Appendix B.)

The computer made the first offer in a 6-round negotiation and followed the same sequence of offers each time. After rounds 1, 3, and 5, the computer generated automatic messages about the counterpart's negotiation intentions. In the control condition, these messages contained only the negotiation intentions (how much the other party planned to offer); in other conditions, it contained both intentions and anger statements. The statements differed in intensity between low-, medium-, and high-intensity conditions. These statements were taken directly from previous work on anger intensity (Adam & Brett, 2018) and were pretested for realism and for perceived anger intensity in the pilot study. If no agreement was reached by the end of the 6 rounds, the negotiation was stopped. Following the negotiation, individuals answered questions about tracking, perceptions of threat, reciprocal anger, and suspicion about the hypotheses.

Measures

Attention check. An attention check question was inserted between several other questions to identify participants who were not actually engaging in the material. The

question asked the participant to simply select number 5 as their answer for that question.

Manipulation check. Participants were asked to report, on a scale of 1 – 7, to what extent they believed their counterpart expressed anger, irritation, annoyance, and frustration (Adam & Brett, 2018). These responses were averaged into a single index (α = .98), which served as a manipulation check on the intensity of anger manipulation.

Tracking. Tracking was measured using questions from Van Kleef and colleagues (2004a). Participants were asked what they thought the buyer's lowest acceptable level of agreement was on each of the three issues. Each issue is on a scale of 1 – 9, so the three estimates were averaged into a single tracking index (α = .84).

Perceived threat. Perceived threat was measured using a traditional "Perceptions of Toughness" scale. Respondents were asked to what extent the adjectives "tough," "threatening," and "dominant" described their counterpart, on scales from 1 – 7 (Adam & Brett, 2015). These were averaged into a single threat index (α = .73).

Reciprocal anger. Reciprocal anger was measured with one item asking the participant to report how angry s/he felt during the negotiation, on a scale of 1 – 7 (Lelieveld et al., 2012).

Concessionary behavior. Concessionary behavior was calculated by taking the difference of the total points demanded for the 3 negotiation issues in round 1 and the total points demanded in the final negotiation round (Adam & Brett, 2018).

Suspicion. Participants were asked two questions to gauge their level of suspicion and understanding of the hypotheses. First, they were asked to report on a scale of 1 – 7 to what extent they believed they were negotiating with a real human being. Next, they were asked in open-ended format to report what they thought the study was testing.

Analyses

Table 1 reports correlations of all major variables.

Manipulation check. I tested the manipulation of intensity of anger by conducting several one-way ANOVAs, with experimental condition as the independent variable and the manipulation check index as the dependent variable. As expected, I found that more anger intensity was perceived by the participant in the low-intensity (M = 5.79, SD = 1.26) condition than in the control condition (M = 3.08, SD = 1.85) [F(1, 137) = 98.49, $p < .001$, $\eta_p^2 = .418$]. The high-intensity condition (M = 6.46, SD = 1.13) was also significantly different than the medium-intensity condition (M = 5.47, SD = 1.65) [F(1, 141) = 17.55, $p < .001$, $\eta_p^2 = .111$]. However, the medium- and low-intensity conditions were not significantly different as far as how much anger was perceived by the anger recipient [F(1, 131) = 1.51, $p = .222$].

Suspicion. Mean responses to the question about the belief that participants were actually negotiating with a real human being were compared across conditions using ANOVA, and no significant differences were found between control (M = 3.17, SD = 1.86) and low (M = 3.05, SD = 1.86) conditions (F(1,137) = 0.16, $p = .690$), between low and medium (M = 2.72, SD = 1.69) conditions (F(1,131) = 1.10, $p = .297$), or between medium and high (M = 2.30, SD = 1.69) conditions (F(1,141) = 2.29, $p = .132$). However, when conducting an ANOVA across all conditions, it appears that participants become more skeptical about whether they are negotiating with a real person as anger intensity increases (F(3,278) = 3.52, $p = .015$). All open-ended responses to the second suspicion question regarding the hypotheses were reviewed. I preregistered that any

Table 1.

Descriptive statistics and correlations, Study 1.

	M	*SD*	1	2	3	4	5	6	7
1. Intensity of anger[a]	2.50	1.15							
2. Suspicion[b]	2.80	1.80	-.19**						
3. Perceived anger	5.17	1.99	.58**	-.08					
4. Tracking	5.68	.86	.14*	.07	.14*				
5. Threat	3.09	1.06	.24**	.04	.49**	.04			
6. Reciprocal anger	2.60	1.70	-.10	.17**	.18**	-.05	.37**		
7. Concessions	184.13	132.14	.10	.11	.15*	.04	.18**	.10	

Notes. *$p \leq .05$; ** $p \leq .01$.

[a] No anger = 1, low-intensity = 2, medium-intensity = 3, high-intensity = 4

[b] Lower numbers indicate less belief that the participant is negotiating with a real person.

participant who clearly guessed that the present study was investigating the "intensity" of anger or "levels" of anger in negotiation would be excluded from the analyses, but there were none.

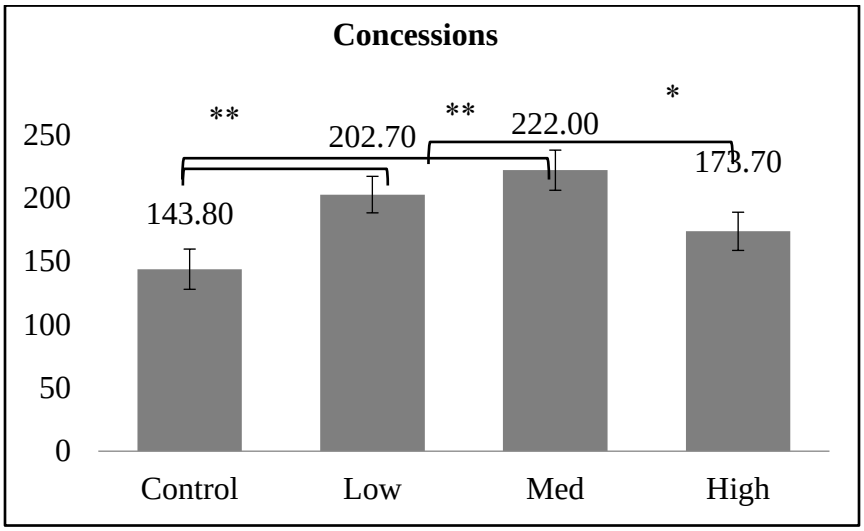
Hypothesis 1a. I tested Hypothesis 1a, which predicts that low-intensity anger expression will lead one's counterpart to make more concessions than when anger is absent, with a one-way ANOVA. The ANOVA tested the difference between concessionary behavior in the low-intensity condition and in the control condition. As expected, I found that more concessions were made in the low-intensity condition (M = 202.73, SD = 115.44) than in the control condition (M = 143.80, SD = 137.74) [$F(1, 137) = 7.32$, $p = .008$, $\eta_p^2 = .051$].

Hypothesis 2a. I then tested Hypothesis 2a, which predicts that medium-intensity anger expression will lead one's counterpart to make more concessions than when anger is absent, with a one-way ANOVA. The ANOVA tested the difference between concessionary behavior in the medium-intensity condition and in the control condition. As expected, I found that more concessions were made in the medium-intensity condition (M = 221.96, SD = 131.79) than in the control condition (M = 143.80, SD = 137.74) [$F(1, 142) = 12.06$, $p = .001$, $\eta_p^2 = .078$].

Hypothesis 3a. I then tested Hypothesis 3a, which predicts that high-intensity anger expression will lead one's counterpart to engage in less concessionary behavior than in medium- and low-intensity anger conditions, with a one-way ANOVA. I used contrast coding to test the difference between concessionary behavior in the high-intensity condition, versus concessionary behavior in the medium- or low-intensity conditions. As expected, I found that fewer concessions are made in the high-intensity

condition (M = 173.65, SD = 129.85) than in the low- and medium-intensity conditions combined (M = 212.71, SD = 124.10) [$F(1, 205) = 4.56$, $p = .034$, $\eta_p^2 = .022$][2]. The results of Hypotheses 1a, 2a, and 3a suggest that concessions are most likely when low- or medium-intensity anger is expressed in negotiation, as predicted (see Figure 3).

Hypothesis 1b. After testing for the main effects, I moved on to the mediation predictions represented in Hypotheses 1b, 2b, and 3b. I tested Hypothesis 1b, which predicts that the effect of low-intensity anger on concessions will be mediated by tracking, using the PROCESS macro and bootstrapping, with 5,000 iterations (Hayes, 2015). I used contrast coding (see Hayes & Preacher, 2014) to compare the low-intensity condition to the control condition, with condition as the independent variable, tracking as



Note. Error bars represent standard errors. * $p \leq .05$, ** $p \leq .01$, *** $p \leq .001$

Figure 3. Average Concessions Across Conditions

[2] Hypothesis 3a was not supported in the pre-exclusion data ($p = .422$).

the mediator, and concessionary behavior as the dependent variable. Contrary to the prediction, tracking did not mediate this relationship because low-intensity anger did not lead to tracking (B = 0.03, SE = 0.15, p = .824), nor did tracking lead to concessionary behavior (B = 13.99, SE = 12.54, p = .266). Therefore, Hypothesis 1b was not supported.

However, I also tested feelings of threat and reciprocal anger as mediators, as planned, and found evidence for feelings of threat as a mediator. The main effect of low-intensity anger on concessionary behavior was significant (B = 58.93, SE = 21.78, p = .008 95% CI [15.87, 102.00]). The analysis also revealed a significant relationship between low-intensity anger and feelings of threat (B = .53, SE = .17, p = .002 95% CI [.20, .87]), where participants in the low-intensity anger condition were more likely to feel that their partner was threatening. When both low-intensity anger and feelings of threat were added to the model as predictors of concessionary behavior, low-intensity anger was no longer significant (p = .056). The indirect effect of low-intensity anger on concessions through threat was significant (ab = .06, BCa CI [.02, .14], which suggests a full mediation model. It seems that threat, rather than tracking, mediated the relationship between low-intensity anger and concessionary behavior. The mediator accounted for about 39% of the total effect (P_M = .39).

Hypothesis 2b. I then tested Hypothesis 2b, which predicts that the effect of medium-intensity anger on concessions will be mediated by feelings of threat, using the PROCESS macro (Hayes, 2015). I used contrast coding (see Hayes & Preacher, 2014) to compare the medium-intensity condition to the control condition, with condition as the independent variable, feelings of threat as the mediator, and concessionary behavior as the dependent variable. Using bootstrapping, with 5,000 iterations, I found that, when

compared to the control condition, feelings of threat mediated the relationship between medium-intensity anger and concessionary behavior. The main effect of medium-intensity anger on concessionary behavior was significant (*B* = 78.16, *SE* = 22.51, *p* < .001 95% *CI* [33.66, 122.65]). The analysis also revealed a significant relationship between medium-intensity anger and feelings of threat (*B* = .42, *SE* = .16, *p* = .009 95% *CI* [.11, .73]), where participants in the medium-intensity anger condition were more likely to feel that their partner was threatening. When both medium-intensity anger and feelings of threat were added to the model as predictors of concessionary behavior, the effect of medium-intensity anger was reduced (*B* = 69.36, *SE* = 22.88, *p* = .003 95% *CI* [24.12, 114.60]). The indirect effect of medium-intensity anger on concessions through threat was significant (*ab* = .03, BCa *CI* [.00, .09], which suggests a partial mediation model. The mediator accounted for about 11% of the total effect (P_M = .11). Tracking and reciprocal anger did not return significant mediation results. Hypothesis 2b was therefore supported.

Hypothesis 3b. Finally, I tested Hypothesis 3b, which predicts that the effect of high-intensity anger on concessionary behavior will be mediated by reciprocal anger, using the PROCESS macro (Hayes, 2015). I used contrast coding (see Hayes & Preacher, 2014) and bootstrapping with 5,000 iterations to compare the high-intensity condition to the combined low- and medium-intensity conditions, with condition as the independent variable, reciprocal anger as the mediator, and concessionary behavior as the dependent variable. Contrary to predictions, reciprocal anger did not mediate the relationship

between high-intensity anger and concessionary behavior[3]. However, I found evidence for a suppression effect with feelings of threat as the suppressor variable. The main effect of high-intensity anger on concessionary behavior was significant (*B* = -39.06, *SE* = 18.30, *p* = .034 95% *CI* [-75.14, -2.98]), where high-intensity anger led to *less* concessionary behavior from one's counterpart. The analysis also revealed a significant relationship between high-intensity anger and feelings of threat (*B* = .30, *SE* = .15, *p* = .049 95% *CI* [.00, .60]), where participants in the high-intensity anger condition were more likely to feel that their partner was threatening. When both high-intensity anger and feelings of threat were added to the model as predictors of concessionary behavior, the effect of high-intensity anger was increased (*B* = -44.56, *SE* = 18.30, *p* = .016 95% *CI* [-80.65, -8.47]), which suggests a suppression effect. It appears that high-intensity anger usually leads to less concessionary behavior, but that is attenuated when the recipient of the anger actually feels threatened. The indirect effect of high-intensity anger on concessions through threat was significant (*ab* = .02, BCa *CI* [.00, .06]. The suppressor

[3] Before data exclusions, reciprocal anger did mediate the effect of high-intensity anger on concessions, but not in the predicted direction. The main effect of high-intensity anger on concessionary behavior was not significant (*B* = -14.53, *SE* = 18.05, *p* = .422 95% *CI* [-50.06, 12.00]). However, there was a significant relationship between high-intensity anger and reciprocal anger (*B* = -.44, *SE* = .22, *p* = .042 95% *CI* [-.87, -.02]), where participants in the high-intensity anger condition were less likely to feel reciprocal anger. Additionally, there was a positive main effect of reciprocal anger on concessionary behavior (*B* = 12.18, *SE* = 4.79, *p* = .011 95% *CI* [2.75, 21.61]), such that those who felt reciprocal anger also gave more concessions. When both high-intensity anger and feelings of threat were added to the model as predictors of concessionary behavior, high-intensity anger was even less significant (*p* = .613). The indirect effect of high-intensity anger on concessions through reciprocal anger was significant (*ab* = -.02, BCa *CI* [-.05, -.00], which suggests a mediation model. The mediator only accounted for about 37% of the total effect (P_M = .37). Since these analyses were conducted before preregistered exclusions, I will not base any conclusions on this analysis.

attenuates about 14% of the total effect (P_M = -.14).Tracking did not return significant mediation results. Hypothesis 3b was not supported.

Summary. The results suggest that as intensity of anger increases, it has a curvilinear effect on concessionary behavior, as found by Adam and Brett (2018). However, it appears that feelings of threat is the only mediator at play in these relationships. Feelings of threat fully mediated the effect of low-intensity anger on concessions and partially mediated the effect of medium-intensity anger on concessions. It acted as a suppressor of the negative effect of high-intensity anger on concessions. For high-intensity anger, feelings of threat can make concessions more likely, when high-intensity anger normally leads to fewer concessions.

The question then remains: Why is it that tracking and reciprocal anger did not play a role, as theory and previous work suggest that they should have? There are several possible explanations, such as a lack of realism, measurement errors, or possible incorrect conclusions in previous work. However, I think the one most likely is that the online negotiation setting may not be realistic enough to elicit tracking efforts or feelings of reciprocal anger. For instance, if I don't believe I am negotiating with a real person, I may not feel motivated to understand their bottom line (tracking). Likewise, I may not feel reciprocal anger if I feel that angry responses are simply computer generated. Indeed, Study 2 shows that reciprocal anger is more likely to surface in a laboratory setting when negotiation partners are real and have the opportunity to communicate openly.

STUDY 2

The purpose of Study 2 was twofold. First, Study 2 tests the effects of varying levels of anger intensity on integrative negotiation outcomes (Hypotheses 4a, 4b, 5a, 5b, 6a, and 6b). Second, Study 2 tests these effects in an actual interactive negotiation setting. Ideally, this setting would have been a face-to-face laboratory negotiation study, where individuals are free to engage in information sharing and make integrative negotiation agreements. However, anger intensity is difficult to manipulate accurately in face-to-face negotiations because of the unreliability of participants in consistently and believably expressing the desired level of anger intensity. Although confederates could be used to remedy that problem, confederates create an additional problem of being so familiar with the negotiation case that the deals that they make may not be representative of the deals that would be made by a negotiator who is not familiar with the negotiation materials. This would call into question the external validity of any results obtained by using just a few confederates throughout the study.

To address these concerns, I used an online instant messaging format for this study, where participants actually negotiate with each other and communicate openly (although not face-to-face), which makes information sharing and integrative behaviors possible. One participant was given a list of specific emotional messages to include in their chats, which served as the manipulation and which was kept consistent across

dyads. This solved the problem of inconsistent emotion manipulations in face-to-face contexts.

Sample

This study was run in an Eccles School of Business computer lab, using the OOCP participant pool. A GPower analysis, with an alpha of .05, 80% power, 4 groups, and an $f = 0.25$ effect size suggested a sample size of n=180 participants. In this study, the unit of analysis will be the dyad, so the ideal sample size for the study is n=180 dyads. Because of limited participants, I preregistered a sample size of no fewer than 100 dyads, and that I would stop data collection after either 180 dyads or the end of fall semester, 2017—whichever came first. However, at the end of fall semester, the participant pool had only yielded 75 dyads. So data collection was finished in January of 2018 with an additional 30 dyads, which brought the total to n = 105 dyads[4].

Procedure

All manipulations and scenarios can be found in Appendix A. Participants filled out a consent form and then were asked to engage in a negotiation via online instant messaging. They were divided into the same 4 conditions as in Study 1 and randomly paired with a partner that they could not see to complete the negotiation. They were told that the more points they earned during the negotiation, the more times they would be

[4] A post hoc power analysis revealed that this sample size would only have powered the studies at 80% if the effect size had been $f = .33$, which is larger than my *a priori* estimate. Based on effect sizes from the tests of Hypotheses 4a, 5a, and 6a, those analyses were powered at 60%, 77%, and 66%, respectively.

entered to win a $25 Amazon gift card at the end of the study.

Buyers in the low-, medium-, and high-intensity conditions were given instructions about acting angry toward the sellers. In line with previous research that instructed participants to express anger in face-to-face negotiations (e.g., Adam & Shirako, 2013; Sinaceur & Tiedens, 2006), buyers were told that experts recommend expressing anger during negotiation to get a better deal. They were given a list of three angry statements on their computer screen and were asked to copy and paste those statements into their chat periodically, in response to offers from their counterpart. Participants were given 10 minutes to engage in the negotiation. If they did not reach a deal during that time, the negotiation was considered an impasse. They then completed a questionnaire that included questions about the details of their deal, tracking, feelings of threat, and reciprocal anger. After completing these questions, they were debriefed and dismissed.

Exclusions

I did not preregister any exclusion criteria. I will therefore report data from all dyads. However, the questionnaire at the end of the study included the same attention check as in Study 1, and three sellers failed that check. Additionally, I found after running about 30 dyads in the anger conditions, about half of those assigned to express anger were not pasting *any* sentences into their chats. So I added the following statement to their instructions:

> At the end of the negotiation, I will debrief everyone so that your partner knows you are not actually an angry person. But for now, you MUST use the angry sentences below <u>or this study will not work and I will have to throw out your data.</u> Thank you in advance for your help!

The manipulation immediately improved. At the end of data collection, there were 18 total buyers in anger conditions (9 in high-intensity, 4 in medium-intensity, and 5 in low-intensity) who had not used any of the sentences. These 18 dyads, plus the 3 dyads that failed the attention check sum to 21 dyads that could be candidates for exclusion. I therefore conducted all analyses with and without these 21 dyads. Surprisingly, results were very similar with and without the excluded dyads, but any interesting results found in the data with exclusions will be reported with footnotes or in the exploratory analyses section. Of those who pasted angry sentences into their chats, as instructed, 20 participants pasted 1 sentence, 21 pasted 2 sentences, and 16 pasted all 3 sentences. This variation was expected, since dyads could complete the negotiation anytime within the 10-minute time allowance.

Measures

All tracking ($\alpha = .72$), feelings of threat ($\alpha = .79$), and reciprocal anger measures were identical to those used in Study 1. All analyses were conducted using seller (anger recipient) data, except for Pareto efficiency, which takes into account the points obtained by the buyer as well.

Pareto efficiency was measured using the Tripp and Sondak (1992) equation for Pareto efficiency (see Appendix B). Tripp and Sondak point out that often, scholars use a simple "joint outcome" calculation as a measure of integrative behavior, but there are some times when joint outcomes do not capture actual Pareto efficiency. The equation used in this paper, taken from Tripp and Sondak (1992), accounts for all possible Pareto-efficient agreements and also takes into account the difficulty of arriving at a Pareto-

efficient outcome. It requires finding all possible agreements and then sorting them by the joint outcome that they represent. Pareto efficiency is calculated by taking the total possible outcomes that would have been *more* Pareto efficient and dividing that number by the total number of outcomes that would have been *more* Pareto efficient or *less* Pareto efficient than the deal in question. All of this is subtracted from 1, which yields a number between 0 and 1 that represents Pareto efficiency.

Analyses

Table 2 reports correlations of all major variables.

Manipulation check. I tested the manipulation of intensity of anger by conducting several one-way ANOVAs, with experimental condition as the independent variable and the manipulation check index ($\alpha = .95$) as the dependent variable. As expected, I found that less anger was perceived in the control condition ($M = 2.35$, $SD = 1.47$) than in the low-intensity condition ($M = 4.14$, $SD = 2.03$) [$F(1, 51) = 13.50$, $p = .001$]. However, as in Study 1, there was no significant difference between low-intensity and medium-intensity ($M = 4.47$, $SD = 1.96$) conditions ($F(1, 51) = .37$, $p = .546$). Additionally, the difference between medium-intensity and high-intensity ($M = 5.03$, $SD = 1.88$) conditions was not significant ($F(1, 50) = 1.10$, $p = .300$)[5].

Impasse rate. Tripp and Sondak (1992) recommend reporting impasse trends in negotiation data so that the potential effect of impasses is not overlooked in negotiation findings. Out of 105 dyads, 28 negotiations (7 in the control condition, 6 in the low condition, 6 in the medium condition, and 9 in the high condition) resulted in impasse

[5] After exclusions, the p value was lower at $p = .167$.

Table 2.

Descriptive statistics and correlations, Study 2.

	M	*SD*	1	2	3	4	5	6	7	8
1. Intensity of anger[a]	2.50	1.12								
2. Suspicion[b]	4.75	1.91	-.23*							
3. Perceived anger	4.00	2.08	.45**	-.15						
4. Tracking	4.95	1.89	-.09	.12	.06					
5. Threat	2.80	1.06	.27**	-.02	.59**	.16				
6. Reciprocal anger	2.76	1.84	.18	.00	.38**	.17	.45**			
7. Impasse[c]	1.27	.44	.06	-.07	.18	-.00	.31**	.11		
8. Pareto efficiency	.59	.24	-.16	-.02	-.19	-.06	-.20	-.17	.00	

Notes. *$p \leq .05$; ** $p \leq .01$.

[a] No anger = 1, low-intensity = 2, medium-intensity = 3, high-intensity = 4

[b] Lower numbers indicate less belief that the participant is negotiating with a real person.

[c] Deal = 1, Impasse = 2

and 77 dyads reached a deal. Previous research suggests that angry negotiations often end in impasse (Yip & Schweinsberg, 2016). However, in these data, there was no significant difference in impasse rates between conditions when tested with chi-square or regression analyses. So it does not appear that anger had any effect on impasse rate in this study.

Hypothesis 4a. I tested Hypothesis 4a, which predicts that low-intensity anger expression will lead to greater Pareto efficiency than when anger is not present, with a one-way ANOVA. The ANOVA tested the difference between average Pareto efficiency in the low-intensity condition and in the control condition. Surprisingly, there was no significant difference between Pareto efficiency in the low-intensity (M = .64, SD = .19) condition and the control condition (M = .75, SD = .28) [$F(1, 38) = 2.39$, $p = .130$, $\eta_p^2 = .059$]. Hypothesis 4a was not supported.

Hypothesis 5a. I tested Hypothesis 5a, which predicts that medium-intensity anger expression will lead to lower Pareto efficiency than in the low-intensity anger condition, with a one-way ANOVA. The ANOVA tested the difference between average Pareto efficiency in the medium-intensity condition and in the low-intensity condition. Once again, Pareto efficiency in the medium-intensity condition (M = .61, SD = .34) was not significantly different than the low-anger condition (M = .64, SD = .19) [$F(1, 39) = .16$, $p = .690$, $\eta_p^2 = .004$]. Hypothesis 5a was not supported.

Hypothesis 6a. Finally, I tested Hypothesis 6a, which predicts that high-intensity anger expression will lead to less Pareto efficiency than in the low-intensity anger condition, with a one-way ANOVA. The ANOVA tested the difference between average Pareto efficiency in the high-intensity condition, versus Pareto efficiency in the low-intensity condition. Again, Pareto efficiency in the high-intensity condition (M = .61, SD

= .26) was not significantly different than the low-anger condition (M = .64, SD = .19) [$F(1, 36) = .16$, $p = .695$, $\eta_p^2 = .004$]. Hypothesis 6a was not supported.

Hypothesis 4b. Next, I tested the mediation models predicted in Hypotheses 4b, 5b, and 6b. I tested Hypothesis 4b, which predicts that the effect of low-intensity anger on Pareto efficiency will be mediated by tracking, using the PROCESS macro (Hayes, 2015). I used contrast coding (see Hayes & Preacher, 2014) and bootstrapping with 5,000 iterations to compare the low-intensity condition to the control condition, with condition as the independent variable, tracking as the mediator, and average Pareto efficiency as the dependent variable. Contrary to my prediction, no pathways were significant for this mediation, nor were there any significant pathways when I tested reciprocal anger as the mediator. However, I did find a significant effect of low-intensity anger on feelings of threat (B = .59, SE = .27, p = .038 95% CI [.03, 1.14]), although indirect effects were not significant, so it did not act as a mediating variable. Hypothesis 4b was therefore not supported.

Hypothesis 5b. I then tested Hypothesis 5b, which predicts that the effect of medium-intensity anger on Pareto efficiency will be mediated by feelings of threat, using the PROCESS macro (Hayes, 2015). I used contrast coding (see Hayes & Preacher, 2014) to compare the medium-intensity condition to the low-intensity condition, with condition as the independent variable, feelings of threat as the mediator, and average Pareto efficiency as the dependent variable. I did not find significant effects for tracking, threat, or reciprocal anger as mediators of the effect of medium-intensity anger on Pareto efficiency. Hypothesis 5b was not supported.

Hypothesis 6b. Finally, I tested Hypothesis 6b, which predicts that the effect of

high-intensity anger on Pareto efficiency will be mediated by reciprocal anger, using the PROCESS macro (Hayes, 2015). I used contrast coding (see Hayes & Preacher, 2014) to compare the high-intensity condition to the low-intensity condition, with condition as the independent variable, reciprocal anger as the mediator, and average Pareto efficiency as the dependent variable. I found that high-intensity anger did increase reciprocal anger, as predicted, but the effect was only marginally significant (B = .93, SE = .53, p = .089 95% CI [-.15, 2.00]). The rest of the mediation model was not significant, and I found no evidence for mediation with tracking or feelings of threat as the mediators. Therefore, Hypothesis 6b was not fully supported.

Summary. The analyses reported in this study were conducted exactly as I preregistered and exactly as planned in my dissertation proposal. The manipulation check indicates that the manipulation was not fully successful, and none of the hypotheses tested in Study 2 were supported. Although the results are disappointing, I learned some important lessons that will inform my future work on this topic, which I will discuss below.

DISCUSSION

The obvious question at this point is, "Why were only 4 of the 12 hypotheses in this paper supported?" I believe that several factors contributed to the peculiar results in this study, and they will be addressed in sections below.

Anger Manipulation

One important factor to consider looking at these data is the fact that the manipulation in Study 2 did not seem to work, and the manipulation in Study 1 produced higher perceived anger in the low-anger condition than in the medium-anger condition. It seems that low-, medium-, and high-intensity anger were all perceived the same in Study 2, which could be the reason none of the hypotheses in that study were supported. It could be that asking students to copy and paste sentences (as was done in Study 2) is still too unreliable a method to cleanly manipulate different levels of anger intensity. With this in mind, I decided to conduct some analyses on Study 2 data using the manipulation check (how much anger the seller perceived) as an independent variable in some exploratory analyses. Perhaps in this case, the perceived anger will be a better predictor than pure assignment to condition.

Indeed, using regression analysis, I found that when perceived anger increased, threat ($b = .30$, $t(103) = 7.45$, $p < .001$) and reciprocal anger ($b = .33$, $t(103) = 4.42$, $p < .001$) increased as well. Additionally, when perceived anger increased, Pareto

efficiency went down at a marginally significant rate $b = -.03$, $t(75) = -1.71$, $p = .092$. The p-value in this last analysis was significant after exclusions ($p = .011$). I also found that as perceived anger increased, the impasse rate went up at a marginally significant rate $b = .04$, $t(103) = 1.89$, $p = .062$.

All of these analyses were exploratory and should be treated with caution, but they do give one cause to believe that if the manipulation can be calibrated correctly in a dyadic negotiation, the significant main and mediating effects between intensity of anger and Pareto efficiency might emerge. In future studies beyond my dissertation, I plan to find ways to encourage participants to use all three anger sentences as was used in Study 2 throughout their negotiations. This could be done through stronger instruction language or incentives. Additionally, I could preregister exclusions that account for those who will not end up using all three sentences.

Measuring Tracking

Even with these exploratory analyses, I found no significant results for tracking across the two studies. However, anecdotally, I had several students who did not understand the tracking questions and asked me about them. I, myself, wondered about the way the questions were worded and felt they were ambiguous. The question reads, "What do you think was the buyer's lowest acceptable level of agreement on price / warranty / service?" The word "lowest" is confusing because a buyer is trying to get the lowest price. So a seller is obviously going to report that the lowest acceptable price was a "1" or $110, when in fact the question wants the seller to select the lowest number from 1 – 9 that they think represents the *highest* price the buyer would have settled on. I used

these questions because they came straight from Van Kleef and colleagues' (2004) seminal work on tracking, but in future studies, I would reword them to be clearer and expect to find at least some results similar to what these scholars found.

Reciprocal Anger

Briefly, I think it is also worth mentioning that although these two studies were designed for specific purposes in mind, they may not have created a scenario where reciprocal anger was as likely to occur as in real-life negotiations. Previous research demonstrates that facial expressions play a pivotal role in neurological processing of emotions (Blair, Morris, Frith, Perrett, & Dolan, 1999), so perhaps face-to-face anger expressions would be more likely to elicit reciprocal anger in counterparts. In future work on reciprocal anger, perhaps face-to-face interactions would be more likely to elicit true reciprocal responses.

Sample Size

Another very important factor as readers consider the results of this dissertation is sample size. The exclusions (although preregistered and necessary) in Study 1 rendered the sample size below n=360, which is what the a priori power analysis suggested was necessary to find medium effect sizes. Perhaps this accounts for some of the lack of findings in Study 1. Likewise, the sample for Study 2 was very limited because of time: 105 dyads is already a small sample, but after taking out the impasses for some of the analyses, it leaves less than n=20 in each cell. For this reason, the results in Study 2 should be reinvestigated. Future work should seek to collect larger samples of data when

conducting such detailed mediation analyses, particularly on emotion research where manipulation can be noisy.

Gender

Although I did not hypothesize gender effects in this project, I ran some post hoc analyses to see if there were gender effects in the data. Gender did not have any direct effects on the main dependent variables (concessions and Pareto efficiency) and did not act as a significant covariant in Studies 1 and 2. However, I did find some significant gender effects on mediating variables in Studies 1 and 2. Post hoc analysis from Study 1 suggested that across all conditions, women may be more likely to perceive that their partners have tough negotiation limits. Correlation analysis showed that female participants (more so than men) perceived that their negotiation counterparts had less room to make concessions (had tougher limits) ($r(278) = .14$, $p = .019$). Study 2 suggested that in the low-anger condition, women felt more threat ($r(102) = .28$, $p = .004$) and reciprocal anger ($r(278) = .25$, $p = .011$) across conditions than did men. Further analyses revealed that it was the gender comparison in the low-intensity anger condition that was driving these effects, as there were no significant gender differences in the other anger conditions.

These were exploratory analyses, and future research is needed to confirm the results. However, previous research does suggest that women are more perceptive of certain types of emotional expressions than are men (Hoffman, Kessler, Eppel, Rukavina, & Traue, 2010), so it makes sense that the mediators explored in this dissertation may behave differently for the two genders. Studying gender as a moderator of these effects

may be a fruitful possible area for future studies.

The Big Picture

Although more data would need to be collected to support these conclusions, the data seem to suggest that in distributive negotiations, low- and medium-intensity anger may be the most effective levels of anger to elicit concessions from one's counterpart. Additionally, Study 2 post hoc analyses revealed that anger expressions can lead to threat ($b = .30$, $t(103) = 7.45$, $p < .001$) and reciprocal anger ($b = .33$, $t(103) = 4.42$, $p < .001$). Further research is needed to determine whether tracking is not as prevalent as previous research suggested, or whether the measurement simply needs to be improved.

THEORETICAL CONTRIBUTIONS

Despite its mixed findings, this project makes two notable contributions to theory in the area of anger in negotiation. First, it articulates the difference between the two different conceptualizations of "perceptions of toughness"—tracking and feelings of threat. The concept of toughness has been used widely in the literature on anger in negotiation to explain the mechanism through which anger leads to concessionary behavior from one's counterpart (Adam & Brett, 2015; Adam & Shirako, 2013; Sinaceur & Tiedens, 2006; Van Kleef & De Dreu 2010). It has also been used in research on negotiation strategy more broadly (Esser & Komorita, 1975; Komorita & Esser, 1975; Smith et al., 1982; Tinsley, O'Connor, & Sullivan, 2002). Within these literatures, the definition of toughness has been unclear and has included variations of threat and tracking. This dissertation attempted to provide the first test of these two separate processes at the same time, although I have explained why I believe the measures for tracking were inadequate. Nevertheless, the distinction drawn between these two concepts will be useful for anger scholars moving forward.

Second, this project contributes to the literature on anger in negotiation by further exploring and sharpening our understanding of different levels of anger intensity. Anger intensity has been theorized for decades but has only once been directly tested (Adam & Brett, 2018). I extend this work by theorizing about the relationship of anger intensity to the important outcome of Pareto efficiency in an integrative negotiation context. As

future work provides more adequate manipulations and sample sizes, understanding these effects will provide negotiation practitioners information about what levels of anger may be considered appropriate and strategic in which contexts.

CONCLUSION

Across these studies, I have shown that low- and medium-intensity anger result in greater concessions from one's counterpart than high-intensity anger and that this effect is mediated by feelings of threat. Additionally, I tested the effects of anger intensity on Pareto efficiency in an integrative negotiation context but did not find significant results. I believe that improvement in the dyadic manipulation of anger intensity, as well as larger sample sizes, may yet reveal significant effects in this context. I hope that the findings herein will be an important stepping stone for future work in the area of anger intensity and emotion in negotiation.

APPENDIX A

SCENARIO AND MANIPULATIONS

Pilot Study Prompt

Taken from Adam and Brett (2018)

Imagine you are negotiating with someone else over the computer and your counterpart sent you the following message at some point (XYZ designates a certain amount of money that your counterpart is offering; the specific amount is not important for the purposes of this study):

Incentive Pay (Study 1)

Taken from Adam and Brett (2018)

Thank you for participating in our study. In this study, you will be randomly matched with another mturk worker over the Internet and be asked to negotiate with him or her. The study should take around 20-30 minutes. You will be paid $0.50 for your participation. Additionally, you will have the chance to win up to $0.50 more depending on your performance in the negotiation. (That is, you can earn up to $1.00, and on average, you can expect to be paid $0.75.) If you are willing to participate, please proceed to the next page.

General Instructions (Pilot Study, Study 1)

Taken from Adam and Brett (2018)

Previous research suggests that people negotiating over the Internet sometimes use different strategies than people who negotiate face-to-face. This may be because parties in electronic negotiations get less insight into one another's intentions. This experiment aims to investigate this possibility. The computer will randomly assign the participants to different conditions. Some participants will act as buyers and others will act as sellers. Further, some participants will be asked to reveal their intentions during the negotiation, whereas others will not. IT IS VERY IMPORTANT THAT YOU PAY CLOSE ATTENTION THROUGHOUT THE NEGOTIATION. OTHERWISE, YOUR DATA WILL NOT BE USABLE. Please click on the “next” button so the computer can search for a partner and assign you to a condition.

The computer is now searching for a negotiation partner (i.e., another mturk worker) for you. The "next" button will appear when your partner is ready, and the computer will automatically determine whether you will act as a buyer or a seller and whether you will be asked to reveal your intentions or not. ONCE AGAIN, PLEASE PAY CLOSE ATTENTION THROUGHOUT THE NEGOTIATION.

Negotiation Scenario – Seller Role (Studies 1 and 2)

Taken from Adam and Brett (2018)

In the upcoming negotiation, you will act as the seller of mobile phones. Another mturk worker will act as the buyer. During the negotiation you will receive information about the buyer's intentions. Every now and then the computer will prompt the buyer to disclose his or her intentions, which are then sent to you. The buyer will not get information regarding your intentions, so we will not ask you to provide this information. Please pay close attention to the information about the buyer's intentions; after the negotiation we will ask you some questions about them.

The negotiation revolves around three issues:

1. The price of the phones

2. The warranty period

3. The duration of the service contract.

As a seller, you are interested in making a deal that involves the highest possible price for the phones, and the shortest possible warranty period and service contract.

Here you see a payoff table which shows how many points you will receive for a given agreement. Your goal is to reach an agreement on all three issues. There are 9 possible levels of agreement for each issue. The first set of columns shows the payoffs for the price of the phones for each of the 9 levels of agreement. The second and third sets of columns show the payoffs for warranty and service.

PRICE			WARRANTY			SERVICE		
LEVEL	PRICE	POINTS	LEVEL	WARRANTY	POINTS	LEVEL	SERVICE	POINTS
1	$190	240	1	1 month	120	1	1 month	400
2	$180	210	2	2 months	105	2	2 months	350
3	$170	180	3	3 months	90	3	3 months	300
4	$160	150	4	4 months	75	4	4 months	250
5	$150	120	5	5 months	60	5	5 months	200
6	$140	90	6	6 months	45	6	6 months	150
7	$130	60	7	7 months	30	7	7 months	100
8	$120	30	8	8 months	15	8	8 months	50
9	$110	0	9	9 months	0	9	9 months	0

For each issue, level 1 is more favorable to you than 2, 2 is more favorable than 3, and so forth. Level 9 is the most unfavorable option for you because it does not give you any points at all. For example, for you agreement 1-1-1 yields the highest payoff, namely 240 + 120 + 400 = 760 points. Agreement 9-9-9 yields the lowest payoff, namely 0 + 0 + 0 = 0 points. The better your deal, the more points you earn, and the more bonus pay (up to an extra $0.50) you will receive. If you do not reach an agreement, you receive no points.

You can propose any combination of numbers, for example: Your offer for price: 3 (meaning you ask for 170 US Dollars per phone and get 180 points) Your offer for warranty: 2 (meaning you offer 2 months warranty and get 105 points) Your offer for

service: 1 (meaning you offer 1 month service and get 400 points)

Keep in mind! The payoff table of the buyer looks different! On level 1-1-1, where you get the highest payoff, the buyer gets nothing. On level 9-9-9, where you get nothing, the buyer gets the highest payoff. Also remember your goal is to earn as many points as possible. The more points you earn, the more bonus pay you will get. However, to get any bonus pay at all, you must reach an agreement!

SUMMARY

- In the upcoming negotiation you will act as the seller of a consignment of mobile phones.
- Your goal is to reach an agreement about the price of the phones, the warranty period, and the service package.
- Every now and then during the negotiation you will receive information about the buyer's intentions. The buyer will receive no information about your intentions.
- Your goal is to earn as many points as possible. The more points you earn, the more bonus pay you get. However, if you do not reach an agreement, you get zero points, and you will not get any bonus pay. The "next" button will appear once your counterpart is ready.

The computer has determined that the buyer will make a first offer. You will receive this offer shortly, and you will then be asked to make a counteroffer. The buyer will then in turn react with a counteroffer, etc. This procedure will go on until you reach an agreement or time runs out. The "next" button will appear once the offer is made.

The buyer offers the following levels of agreement:

Offer for price: 8 Offer for warranty: 7 Offer for service: 8

Please enter your offer for price (enter only single digits in the text box, i.e., "1", "2", "3", etc.):

Please enter your offer for warranty:

Please enter your offer for service:

Your offer has been sent. The buyer is now being asked to reveal his/her intentions. The "next" button will appear once the buyer's intentions are entered; this may take a while.

This pattern continues for 6 rounds. The scenario will be the same for Study 2 (instant messaging), but the instructions will be modified to fit an instant messaging context.

Negotiation Scenario – Buyer Role (Study 2)

Adapted from Adam and Brett (2018)

In the upcoming negotiation, you will act as the buyer of mobile phones. Another participant will act as the seller.

The negotiation revolves around three issues:

1. The price of the phones

2. The warranty period

3. The duration of the service contract.

As a buyer, you are interested in making a deal that involves the lowest possible price for the phones, and the longest possible warranty period and service contract.

Here you see a payoff table which shows how many points you will receive for a given agreement. Your goal is to reach an agreement on all three issues. There are 9 possible levels of agreement for each issue. The first set of columns shows the payoffs for the price of the phones for each of the 9 levels of agreement. The second and third sets of columns show the payoffs for warranty and service.

PRICE			WARRANTY			SERVICE		
LEVEL	PRICE	POINTS	LEVEL	WARRANTY	POINTS	LEVEL	SERVICE	POINTS
1	$190	0	1	1 month	0	1	1 month	0
2	$180	50	2	2 months	15	2	2 months	30
3	$170	100	3	3 months	30	3	3 months	60
4	$160	150	4	4 months	45	4	4 months	90
5	$150	200	5	5 months	60	5	5 months	120
6	$140	250	6	6 months	75	6	6 months	150
7	$130	300	7	7 months	90	7	7 months	180
8	$120	350	8	8 months	105	8	8 months	210
9	$110	400	9	9 months	120	9	9 months	240

For each issue, level 9 is more favorable to you than 8, 8 is more favorable than 7, and so forth. Level 1 is the most unfavorable option for you because it does not give you any points at all. For example, for you agreement 9-9-9 yields the highest payoff, namely 400 + 120 + 240 = 760 points. Agreement 1-1-1 yields the lowest payoff, namely 0 + 0 +

0 = 0 points. The better your deal, the more points you earn, and the more tickets you will receive in a drawing for a $25 Amazon gift card. If you do not reach an agreement, you receive no points.

You can propose any combination of numbers, for example: Your offer for price: 7 (meaning you ask for 130 US Dollars per phone and get 300 points) Your offer for warranty: 8 (meaning you offer 8 months warranty and get 105 points) Your offer for service: 9 (meaning you offer 9 months of service and get 240 points).

Keep in mind! The payoff table of the buyer looks different! Remember, your goal is to earn as many points as possible. The more points you earn, the more chances you will get to win the gift card. However, to get any bonus pay at all, you must reach an agreement!

SUMMARY

- In the upcoming negotiation you will act as the buyer of a consignment of mobile phones.
- Your goal is to reach an agreement about the price of the phones, the warranty period, and the service package.
- Your goal is to earn as many points as possible. The more points you earn, the more tickets in the drawing you get. However, if you do not reach an agreement, you get zero points, and you will not get any tickets in the drawing.

Textual Anger Manipulations (All Studies)

(Adam & Brett, 2018)

* Offers (i.e. 8-7-7) will be changed in the pilot test to "XYZ."

No anger:

After round 1: I think I'll offer 8-7-7.

After round 3: I'm going to offer 7-6-7.

After round 5: I'm going to offer 6-6-6.

Low anger:

After round 1: I should perhaps let you know that this offer makes me a tiny bit angry. I think I'll offer 8-7-7.

After round 3: I'm reluctant to say that this is beginning to kind of get on my nerves a little. I'm going to offer 7-6-7.

After round 5: Hmmm… I'm going to offer 6-6-6, because this negotiation is starting to make me the slightest bit upset.

Medium anger:

After round 1: This offer makes me really angry. I think I'll offer 8-7-7.

After round 3: This is really getting on my nerves. I'm going to offer 7-6-7.

After round 5: I'm going to offer 6-6-6, because this negotiation makes me upset.

High anger:

After round 1: What the...?!?!?! This offer makes me EXTREMELY ANGRY! I think I'll offer 8-7-7.

After round 3: This is really, really getting on my nerves! I'm going to offer 7-

6-7... SERIOUSLY, ARE YOU FREAKING KIDDING ME???

After round 5: %$#)$^!)@! I'm going to offer 6-6-6, because this negotiation makes me TOTALLY UPSET!

In Study 2, the following instructions will be inserted for the seller (adapted from Sinaceur & Tiedens, 2006):

Research has shown that expressing (just a little bit of anger / anger / a lot of anger) in a negotiation can be really beneficial. It causes the other person to concede more so that you get a much better deal. During this negotiation, you need to express (anger toward your counterpart, but keep it relatively mild / anger toward your counterpart / anger toward your counterpart, and really go for it and get mad). On the side of your screen are angry messages that have been pretested and shown to sound angry to other people.

Throughout the negotiation, when your counterpart makes an offer, **copy and paste one of these sentences into your chat box and send it to your counterpart.** Then proceed to make your counteroffer. Try to use all of the sentences by the end of the negotiation. Feel free to insert your own angry remarks throughout the negotiation as well.

IMPORTANT: Do not tell your counterpart that you have been instructed to act angry. Your anger needs to be as realistic as possible. Other than pasting these sentences, feel free to communicate and negotiate normally with your counterpart.

APPENDIX B

FULL SCALES—MANIPULATION CHECKS, DEPENDENT VARIABLES, AND MEDIATORS

Pilot Test Questions

Taken from Adam and Brett (2018)

1. Based on the statement, how angry do you think your counterpart is?

Not at all Very much

1 2 3 4 5 6 7

2. Based on the statement, how irritated do you think your counterpart is?

Not at all Very much

1 2 3 4 5 6 7

3. Based on the statement, how frustrated do you think your counterpart is?

Not at all Very much

1 2 3 4 5 6 7

4. Based on the statement, how annoyed do you think your counterpart is?

Not at all Very much

1 2 3 4 5 6 7

5. Do you think the statement sounds natural, i.e., it sounds like something a person would say in a negotiation?

Not at all Very much

1 2 3 4 5 6 7

Tracking

Taken from Van Kleef et al. (2004a)

What do you think was the buyer's lowest acceptable level of agreement on price / warranty / service?

1 2 3 4 5 6 7 8 9

Feelings of Threat

(Adapted from Adam & Brett, 2015)

I think the following adjectives describe the buyer in this negotiation:

1. Tough

Not at all Very much

1 2 3 4 5 6 7

2. Threatening

Not at all Very much

1 2 3 4 5 6 7

3. Dominant

Not at all Very much

1 2 3 4 5 6 7

To what extent do you think your counterpart expressed

1. Anger

Not at all Very much

1 2 3 4 5 6 7

2. Irritation

Not at all Very much

1 2 3 4 5 6 7

3. Frustration

Not at all Very much

1 2 3 4 5 6 7

4. Annoyance

Not at all Very much

1 2 3 4 5 6 7

Reciprocal Anger

Adapted from Lelieveld et al. (2012)

How angry did you feel during the negotiation?

Not at all Very much

1 2 3 4 5 6 7

Concessionary Behavior

Taken from Adam and Brett (2018)

The number of points demanded for the three negotiation issues in the first round minus the number of points demanded for the three negotiation issues in the last round.

Pareto Efficiency

Taken from Tripp and Sondak (1992)

The Pareto efficiency of each agreement will be calculated with the following equation:

$$1 - \left(\frac{\text{number of possible agreements Pareto superior to the reference agreement}}{\text{the sum of possible Pareto superior and Pareto inferior agreements to the reference agreement}}\right)$$

Attention Check

If you are reading this question, please select the number 5.

Suspicion Questions

1. How convinced are you that you were negotiating with a real person during this exercise?

Not at all Very much

1 2 3 4 5 6 7

2. What research question(s) do you think this study was trying to test?

Demographic Questions

Is English your first language? (Yes/No)

What is your age?

What is your gender?

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