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What is This?

Conflict Templates in Negotiations, Disputes, Joint Decisions, and Tournaments

Nir Halevy[1] and L. Taylor Phillips[1]

Abstract

Conflict situations present interaction partners with opportunities to behave cooperatively or competitively. Conflict templates (CTs) capture interaction partners' perceptions of the relationships between their actions and outcomes. Study 1 investigated situational influences on CTs as well as the cross-situational consistency of CTs using a longitudinal diary design. Deal-making negotiation produced more competitive perceptions than dispute resolution, joint decision making, or naturally occurring social interactions. Study 2 investigated downstream consequences of CTs by having participants submit strategies for a tournament involving four types of situations. Each strategy was matched with all other submitted strategies in a series of repeated games for a total of over 12 million rounds. Cooperative perceptions significantly predicted economic performance in the tournament. We highlight the implications of the current findings for conflict management and resolution.

Complex social interactions, such as negotiations, disputes, joint decision making, and tournaments, typically involve a mixture of competitive and cooperative elements. The competitive elements result from individuals' desires to get more of what they want—more resources, greater control, higher status, increased security, and so on. The cooperative elements result from the need to coordinate actions and agree on some underlying rules of conduct, if only to avoid mutual destruction. For example, even the most contentious rivals in business, sports, and politics recognize the need to protect the integrity of the larger systems (i.e., markets, leagues, and democracies) that allow competitors to pursue their goals. Thus, thinking through complex social interactions, and devising effective strategies in them, requires decision makers to appreciate the coexistence of competitive and cooperative elements (De Dreu, 2010; Schelling, 1960).

Economic perspectives on social interaction use strategic games to describe the coexistence of competitive and cooperative elements in social interactions. Strategic games are simplified, abstract models of social interaction that stipulate the relationship between individuals' choices and their outcomes. Situations involving different combinations of competitive and cooperative elements are described using different types of strategic games (Camerer, 2003a). A strongly held assumption common to most economic research on social interactions is that a well-defined game in fact exists, that is, that the structural space within which social interaction occurs is objectively "given" in some sense (in lab settings, it is typically provided by the experimenter). This assumption allows researchers to compare people's understandings of their social interactions to the objective features of the predetermined games (Devetag & Warglien, 2008; Kiyonari, Tanida, & Yamagishi, 2000).

Whereas economic research on social interaction typically investigates how the structure of a given situation influences choice behavior (Camerer, 2003a), psychological research on social interaction tends to focus more on actors' understandings of their social interactions (Deutsch, 1977; Reis, 2008). Consistent with psychologists' interest in the cognitive mechanisms underlying behavior, psychological research concluded "that how parties understand the game is a critical determinant of how they play the game" (Bazerman, Curhan, Moore, & Valley, 2000, p. 286). In line with this perspective, the central question underlying our research is as follows: What games do people *think* they are playing? This question assumes games are endogenous to individuals, that they exist as mental models in the minds of decision makers (Ames, Weber, & Zou, 2012; Halevy, Chou, & Murnighan, 2012).

The current research advances a cognitive analysis of behavioral decision making in social interactions by exploring individuals' conflict templates (CTs), defined as individuals' perceptions of the relationships between their actions and

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Table 1. Payoff Structures of the Prisoner's Dilemma, Chicken, Assurance, and Maximizing Difference Games.

	Prisoner's Dilemma	Chicken	Assurance	Maximizing Difference
Mutual cooperation	Good	Good	Best	Best
Mutual competition	Bad	Worst	Bad	Worst
Unilateral cooperation	Worst	Bad	Worst	Bad
Unilateral competition	Best	Best	Good	Good

Note. In each game, each player can choose between two courses of action. The choices of both players determine their respective outcomes that are rank ordered as follows: best, good, bad, and worst. All four games are symmetric, that is, if Player A gets their best outcome under mutual cooperation, Player B also gets their best outcome under mutual cooperation.

outcomes in a social interaction. Study 1 investigated situational influences on CTs as well as the cross-situational consistency of CTs. Study 2 investigated downstream consequences of CTs in repeated social interactions.

Conflict Templates

Social interactions are characterized by outcome interdependence: Interaction partners influence their own and each other's outcomes through their choices. Separate lines of research have investigated different aspects of individuals' thinking in social interactions. For example, cognitive hierarchy models focus on the depth of individuals' thinking, exploring how many steps of iterative reasoning individuals engage in when thinking about others' likely actions (Camerer, Ho, & Chong, 2004). Learning models explain how experience, reinforcement, forgetting, and experimenting with different choices shape decision making in repeated social interactions (Erev & Roth, 1998). Social preference models explicate how different interaction goals, such as altruism versus aggression, influence behavior in social interactions (Van Lange, 1999).

CTs are conceptually distinct and empirically distinguishable from other aspects of strategic reasoning, such as iterative thinking, experience-based learning, or social motives. Conceptually, CTs capture individuals' understandings of the *structural properties of the situation*, that is, the action–outcome contingencies that exist for them and their counterpart in the interaction. Depth of reasoning, learning, and social motives exert their impact on choice behavior within the structure individuals mentally impose on the situation (Kreps, 1990; Rubinstein, 1991). Empirically, past research observed either weak relationships (Halevy, Cohen, Chou, Katz, & Panter, 2014, study 1) or no relationships (Halevy et al., 2012, study 3) between individuals' mental representations of their interactions and their social motives.

Individuals' perceptions of the relationships between their actions and outcomes can be represented in the form of a payoff matrix to capture the games people think they are playing (Plous, 1985). Recent research identified four CTs; although by no means a comprehensive and final set, the Prisoner's Dilemma (PD), Chicken, Assurance, and Maximizing Difference (MD) games emerged repeatedly as common mental representations of the relationships between counterparties' actions and their outcomes (Halevy et al., 2012). Thus, a small

number of archetypal games seem to adequately capture how most individuals think about their social interactions.

Detailed accounts of these four games, including real-world examples, are readily available elsewhere (Halevy & Katz, 2013; Kelley et al., 2003). Here, we provide a direct comparison of the nature of outcome interdependence in each of them in Table 1. As Table 1 illustrates, these games offer different perspectives on the nature of social conflict. For instance, getting the best outcome requires unilateral competition in PD and Chicken, but mutual cooperation in Assurance and MD. The worst outcome results from unilateral cooperation in PD and Assurance, but from a head-on collision in Chicken and MD. The structure of these games suggests further that, in a nonrepeating interaction, a profit-maximizing decision maker should compete in PD, do the opposite of their counterpart in Chicken, do the same as their counterpart in Assurance, and cooperate in MD. The properties of these four games make the PD game the most competitive, and the MD game the most cooperative, in this set.

The Current Research

Past research on CTs typically focused on one context at a time. For example, separate investigations have studied CTs in a deal-making negotiation (Halevy et al., 2012), during a labor-management dispute (Halevy, Chou, & Murnighan, 2011), in the workplace (Halevy et al., 2014), and in the context of the Israeli–Palestinian conflict (Halevy, Sagiv, Roccas, & Bornstein, 2006). The tendency to focus on a single context in each study leaves three theoretically intriguing and practically important questions about people's mental representations of their social interactions unanswered. The first open research question concerns situational influences on CTs. The second question concerns the consistency of CTs across time and situations. The third question concerns CTs' downstream consequences across different situations and repeated interactions. The current research contributes to theory and research on interdependent decision making by addressing these three open research questions. We consider each of these questions in turn subsequently.

Situational Effects on CTs

The literature on interdependent decision making clearly distinguishes deal-making negotiation, dispute resolution, and

joint decision making as three qualitatively different types of situations. Deal-making negotiation is the quintessential economic exchange situation: Individuals bargain to maximize personal and/or joint profit and manage their exchange by attending to financial value and calculating losses and gains (Bazerman et al., 2000). Disputes occur when one party makes a claim and the other party rejects that claim; during dispute resolution, parties attempt to exert their social influence to gain compliance with their claim and alleviate the conflict (Brett et al., 2007). Joint decision making occurs when two or more individuals who share the same task (such as the members of a jury or an admissions committee) search together for satisfactory solutions to their mutual problem (Hinsz, Tindale, & Vollrath, 1997).

Three lines of research converge in suggesting that deal-making negotiations may be perceived more competitively than either dispute resolution or joint decision making situations. First, financial incentives often stimulate greed, which in turn, fuels self-interested, competitive behavior in social interactions (Gneezy, 2005; Wang & Murnighan, 2011). Second, market pricing contexts have been shown to boost the psychological prominence of mutual competition in social interactions (Halevy & Chou, 2014). Third, negotiators often assume that their interests are diametrically opposed to their counterparts' (i.e., the fixed-pie bias: De Dreu, Koole, & Steinel, 2000). Based on these findings, we hypothesized that a deal-making negotiation would evoke a stronger tendency to view the interaction as a PD game and a weaker tendency to view it as an MD game, relative to dispute resolution and joint decision making.

Individual Differences in CTs

Previous research has conceptualized different aspects of individuals' thinking about social interactions, including iterated reasoning (Camerer, 2003b) and social motives (Iedema & Poppe, 1995; Van Kleef & De Dreu, 2002), in terms of stable individual differences. Here, we focus on a central tenet of the individual differences approach: the existence of within-person consistency across time and situations. Specifically, we explore the extent to which individuals' understandings of their social interactions, as manifested in their endorsement of CTs, are consistent across time and situations.

Strong situational forces often influence individual thinking and behavior, thus making them inconsistent across situations in an *absolute* sense (Ross & Nisbett, 1991). For example, most individuals act more aggressively when provoked than when unprovoked (Ito, Miller, & Pollock, 1996) and make more concessions to angry negotiation counterparts than to happy ones (Van Kleef, De Dreu, & Manstead, 2004). Strong situational influences, however, do not rule out the existence of relative or contingent forms of consistency (Fleeson & Noftle, 2008; Funder, 2009; Mischel & Shoda, 1995). For example, in a given sample of people, the person who acts most aggressively when provoked is likely to be among those who act most aggressively when unprovoked. In addition, the relative position of aggression in the behavioral repertoire of that person

may be consistent across situations. For example, a person's tendency to act aggressively may be consistently higher than his or her tendency to concede and consistently lower than his or her tendency to frown. Therefore, situational effects, as predicted in the preceding section, can coexist with notable levels of individual consistency across time and situations.

Consistent with the existence of meaningful, stable individual differences with respect to other aspects of individuals' thinking about social interaction, we hypothesized that individuals would tend to view different interactions through the same perceptual lens, which would be evident by positive correlations among endorsements of the same game as descriptive of different social interactions.

Downstream Consequences: Economic Performance

Perceiving strong interest misalignment in negotiation typically hinders value creation, causing negotiators to miss opportunities to increase joint profits (Bazerman et al., 2000; Thompson & Hastie, 1990). Previous research found that endorsement of the PD and Chicken games (but not Assurance or MD) correlated positively with subscribing to a fixed-pie bias in negotiation (Halevy et al., 2012, study 3). Endorsement of PD and Chicken also negatively influenced (whereas endorsement of Assurance and MD positively influenced) individuals' perceived warmth and counterparties' negotiation expectations (Halevy et al., 2012, study 7). Thus, competitive CTs seem to diminish, whereas cooperative CTs seem to support, counterparties' ability to capture gains in situations that allow mutual profit. Consistent with these findings, we hypothesized that a cooperative approach to social interactions, and in particular, viewing interactions as an MD game, would predict economic performance in a tournament involving repeated interactions, especially when the structure of the situation is conducive for joint gain maximization.

Study 1

Study 1 tested the hypotheses that (a) deal-making negotiation increases endorsement of PD and decreases endorsement of MD relative to other types of situations and (b) individuals tend to consistently endorse the same game as descriptive of different social interactions. To test these hypotheses, Study 1 employed a novel methodology that integrated experimental manipulations of social interactions with a longitudinal diary study. Specifically, participants took part in a 6-week long study on perceptions of social interactions. In the first 3 weeks of the study, we assessed their CTs in simulated interactions, including a deal-making negotiation, a dispute resolution, and a joint decision-making task. In the last 3 weeks of the study, participants received text messages to their mobile phones that prompted them to report their CTs in the context of their most recent real-world dyadic interaction. This methodology provided rich information about individuals' perceptions of their interactions across time and situations. It also allowed us to compare endorsement of CTs in simulated interactions with

Table 2. Excerpts From Participants' Descriptions of Their Interpersonal Interactions.

Obs.	Interpersonal Interaction
#1	"I was running around Lake Lag, and a bicyclist was coming up behind me on the path … "
#6	"I spoke with a car dealer for purchasing a car … "
#8	"I got hit by another car on the highway … "
#10	"My friend and I were deciding who was to pay the bill … "
#20	"I ran into my boss and she instructed me to change the spreadsheet … "
#22	"My friend had a nervous breakdown … "
#40	"Waking up in the morning with my girlfriend. We were talking about what she dreamt about … "
#51	"Saturday morning in the dorm my neighbor knocked on my door … "
#67	"I was at the dog park where another dog was playing very roughly with my dog … "
#73	"I was at the UCLA vs. Stanford Men's Soccer game, and I saw a friend … "
#82	"My boyfriend and I were cooking dinner together … "
#85	"My fiancé and I are visiting his parents at their home. There's no really good place to sleep … "
#89	"I played ping pong with one of my residents in the residential lounge … "
#94	"Discussing with my mother in the kitchen about an advice I gave to a friend … "

endorsement of CTs in naturally occurring, personally relevant social interactions.

Method

We recruited 101 Stanford University students and staff (62.4% female; age: $M = 22.2$, standard deviation [SD] = 5.3) to participate in a 6-week study on social interactions; they received US$26 for completing all the stages of the study. In each week of the study, participants received an e-mail invitation containing a link to that week's online survey, followed by a text message reminder to their mobile phone. Weekly surveys differed in length and content, as explained subsequently. Attrition from this longitudinal study was minimal (the smallest sample size, recorded in Week 6 of the study, included 93 participants).

During each of the first 3 weeks of the study, we assessed CTs in one of the three simulated situations—deal-making negotiation, dispute resolution, and joint decision making. The order in which participants encountered each situation type was counterbalanced across the first 3 weeks and all participants saw each situation once. Participants received detailed role materials for these simulated interactions as described subsequently; these cases provided rich information about the situation and their role in it, which served as the basis for participants' CTs (i.e., they prepared for, but did not actually engage in interactions in Weeks 1–3). Our deal-making negotiation involved interorganizational bargaining over the selling/buying of a biotechnology plant (Gunia, Swaab, Sivanathan, & Galinsky, 2013). Our dispute situation involved two directors in a large corporation who disagreed on how to run the company's summer interns program (Brett, 2007). Our joint decision-making task was the Desert Survival simulation—a joint problem-solving exercise that requires participants to reach agreement on the relative importance of various items for survival in desert conditions (Littlepage, Schmidt, Whisler, & Frost, 1995).

In Weeks 4–6 of the study, participants received a text message to their mobile phone notifying them that "Week [#]

survey has been sent to your Stanford email. Please take the five minute survey now!" The text messages were sent at different times of the day (12:30 p.m., 7 p.m., and 3 p.m. in Weeks 4–6, respectively) to increase the diversity of real-world experiences captured in the diary study portion of our investigation. The weekly survey in Weeks 4–6 asked participants: "Think about the most recent interpersonal interaction you've had that involved you and just one other person. Please write down what happened in that situation—where it took place, who was there, what happened, etc. Please be as detailed as possible without disclosing identifying information." Table 2 presents excerpts from some of the situations the participants reported.

Assessment of CTs

In each of the 6 weeks of the study, participants read four short paragraphs (adapted from Halevy et al., 2012), each describing the nature of outcome interdependence in PD, Chicken, Assurance, or MD. Participants rated on 5-point scales ranging from $1 = strongly\ disagree$ to $5 = strongly\ agree$ how much they thought each description captured the nature of the interaction they considered that week.

Results and Discussion

Situational Effects

Table 3 and Figure 1 present the mean endorsements of the four games in each of the 6 weeks of the Study. To test our first hypothesis, we explored how situation type influenced endorsement of the most competitive (PD) and most cooperative (MD) games. Situation type significantly influenced endorsement of PD, $F(3, 279) = 29.64$, $p < .001$. Endorsement of the PD game was significantly stronger for the deal-making negotiation as compared with the dispute resolution (Cohen's $d = 0.43$), the joint decision making (Cohen's $d = 0.97$), or participants' real-world interactions (Cohen's $d = 0.95$), $F > 14$, $p < .001$ for all.

Table 3. Means, SDs, and Correlations Among Weekly Endorsement Scores of the Four Games (Study I).

	M (SD)	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1. Negotiation: P	3.68 (1.19)$_a$																							
2. Negotiation: C	3.37 (.99)$_b$	.30**																						
3. Negotiation: A	3.07 (.97)$_c$	−.01	−.02																					
4. Negotiation: M	3.30 (1.22)$_{a,b}$	−.32**	−.05	.55**																				
5. Dispute: P	3.17 (1.17)$_a$	.33**	.24*	.10	.01																			
6. Dispute: C	3.42 (1.05)$_{a,b}$	.12	.25*	.05	.03	.37**																		
7. Dispute: A	3.43 (.98)$_a$	.06	.01	.09	.12	−.04	−.10																	
8. Dispute: M	3.72 (1.16)$_b$	−.22*	−.00	.11	.31**	−.22*	−.03	.40**																
9. Joint DM: P	2.60 (1.03)$_a$	−.08	−.04	.28*	.25*	.21*	−.00	.18	.19															
10. Joint DM: C	2.84 (.86)$_b$	.09	.15	.30**	.17	.10	.14	.09	.19	.47**														
11. Joint DM: A	3.44 (.90)$_c$	.25*	.20*	.06	.11	.25*	.05	.11	.00	.09	.01													
12. Joint DM: M	4.34 (.92)$_d$	.16	.29**	.01	.10	−.02	.03	.05	.20	−.21*	−.07	.19												
13. Week4: P	2.59 (1.06)$_a$	.05	−.01	.50**	.38**	.24*	.12	.29**	.22*	.44**	.45**	.11	−.04											
14. Week4: C	2.80 (.96)$_b$	−.06	.07	.31**	.19	.07	.09	.24*	.35**	.34**	.35**	−.07	.05	.69**										
15. Week4: A	3.24 (1.12)$_c$	.28*	.10	.11	.09	.05	.15	.19	.22*	.09	.18	.28*	.23*	.37**	.34**									
16. Week4: M	3.96 (1.09)$_d$	.15	.24*	.08	.18	−.04	.13	−.03	.16	−.03	.11	.14	.31**	.13	.28*	.45**								
17. Week5: P	2.71 (1.07)$_a$	.12	.18	.23*	.26*	.35**	.22*	−.01	.04	.47**	.27*	.17	−.01	.51**	.34**	.27*	.14							
18. Week5: C	2.86 (1.01)$_b$	−.12	.20	.24*	.30**	.18	.26*	−.03	.08	.26*	.22*	.06	.21*	.43**	.38**	.25*	.37**	.52**						
19. Week5: A	3.37 (1.01)$_b$	.21*	.17	.06	.17	−.11	.11	.17	.28*	.17	.15	.33**	.15	.20	.19	.47**	.18	.24*	.21*					
20. Week5: M	3.98 (1.05)$_c$	.10	.11	.08	.23*	−.06	.30**	.17	.36**	.05	.03	.13	.32**	.20	.29**	.33**	.25*	.09	.26*	.52**				
21. Week6: P	2.83 (.99)$_a$	.37**	.06	.14	−.02	.21*	.22*	.20	.04	.20	.31**	−.05	−.08	.38**	.36**	.25*	.07	.25*	.08	.13	−.04			
22. Week6: C	3.05 (.95)$_b$	.36**	.16	.12	−.16	−.06	.22*	−.10	.02	.00	.27*	−.02	.08	.15	.25*	.26*	.33**	.10	.25*	.07	−.10	.57**		
23. Week6: A	3.13 (.98)$_b$	.09	.07	.15	.09	−.20	−.07	.22*	.30**	.27*	.26*	.11	.08	.37**	.36**	.48**	.28*	.30**	.33**	.49**	.22*	.25*	.23*	
24. Week6: M	4.00 (1.00)$_c$	.02	.20	.08	.28**	−.07	.10	.01	.21*	.04	.08	.11	.35**	.11	.12	.24*	.29*	.22*	.29*	.35**	.48**	−.12	−.03	.24*

Note. "P", "C", "A," and "M" stand for Prisoner's Dilemma, Chicken, Assurance, and Maximizing Difference, respectively. Within each interaction context, means with different subscripts indicate significant differences $p < .05$. Gray cells indicate within-context between-game correlations. Outlined cells indicate within-game between-context correlations. N per context varies as follows: Negotiation = 97; Joint DM = 98; Dispute = 98; Week 4 = 96; Week 5 = 94; and Week 6 = 93.
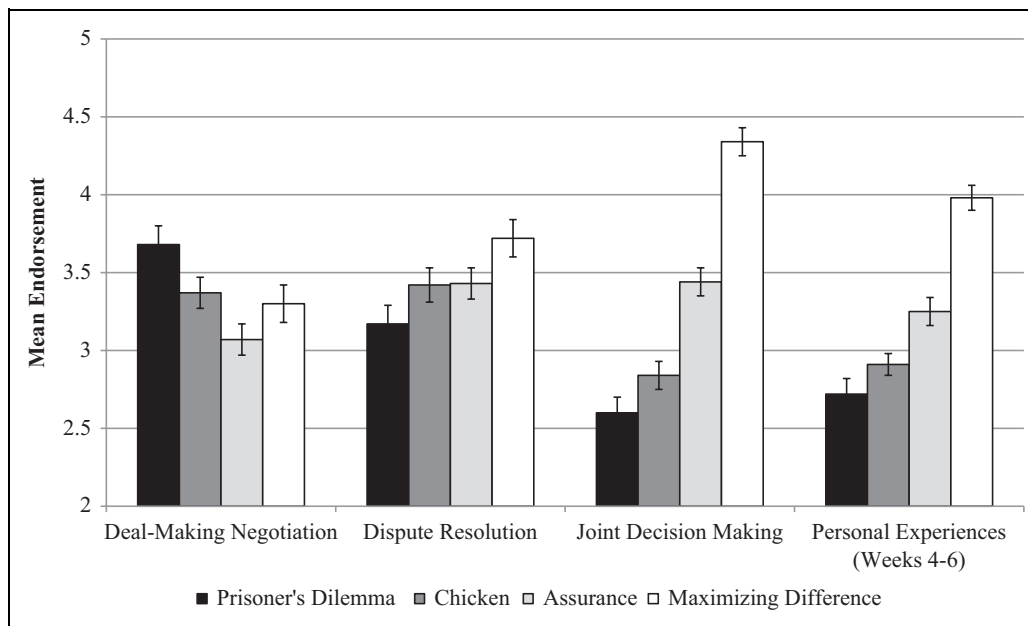$*p < .05.$ $**p < .005.$

Figure 1. Endorsement of Prisoner's Dilemma, Chicken, Assurance, and Maximizing Difference by situation type.

Situation type also significantly influenced endorsement of MD, in the opposite direction, $F(3, 279) = 23.38$, $p < .001$. The joint decision-making task was perceived as an MD game significantly more than participants' real-world experiences, $F(1, 93) = 12.98$, $p = .001$ (Cohen's $d = 0.42$), which in turn, were perceived as an MD game significantly more than the dispute resolution, $F(1, 93) = 5.24$, $p = .024$ (Cohen's $d = 0.26$), which in turn, was perceived as an MD game significantly more than the deal-making negotiation, $F(1, 93) = 8.89$, $p = .004$ (Cohen's $d = 0.35$). The effect size for the difference in endorsement of MD between the deal-making and joint decision-making situations was particularly large (Cohen's $d = 0.96$). These findings lend support to our hypothesis that deal-making negotiation produces more competitive perceptions than other types of situations (Halevy & Chou, 2014). The pattern of endorsement scores also indicates participants' real-world interactions in Weeks 4–6 resembled joint decision making more than deal-making negotiation.

Individual Differences

The pattern of associations in Table 3 provides evidence for three complementary processes. First, participants clearly distinguished among the four games as evidenced by the wide range of correlations between endorsements of different games within each situation type. Second, there were meaningful individual differences in CTs: Endorsements of the same game across different contexts typically correlated positively and significantly (median correlation: $r = .24$, Cohen's $d = 0.49$). Of the 60 correlations between endorsements of the same game across different contexts, only 1 was negative (as compared with 42 off-diagonal negative correlations), and of the 59 positive correlations, 37 were statistically significant (62.7%; for a

similar approach to exploring cross-situational individual consistency, see Funder & Colvin, 1991). Individual consistency is also evident from the intraclass correlations for the four games across the 6 weeks of the study: .68, .62, .64, and .68 for PD, Chicken, Assurance, and MD, respectively.

Third, individual consistency in the endorsement of CTs increased in magnitude as the focus of our investigation shifted from simulated social interactions to real-world social interactions. Specifically, the median correlation among endorsements of the same game across different contexts in Weeks 1–3 was $r = .21$ (Cohen's $d = .43$); the median correlation among endorsements of the same game across different contexts in Weeks 4–6 was nearly twice as strong, $r = .38$ (Cohen's $d = .82$).[1]

Study 1 documented strong situational effects on CTs alongside notable levels of individual consistency across time and situations in endorsement of CTs. These results exemplify Kurt Lewin's (1948) foundational perspective, which recognized the simultaneous roles that situation and person variables play in shaping social thinking and behavior. Study 2 extended the current investigation by exploring how CTs influence economic performance in a tournament setting.

Study 2

Given the observed individual differences in endorsement of CTs in Study 1, Study 2 sought to investigate downstream consequences of individual differences in CTs. Specifically, we investigated how the tendency to view social interactions through the lens of a particular game relates to individuals' economic performance across many repeated interactions with a large number of counterparts.

A cooperative approach may contribute to individuals' accumulated wealth by increasing joint gains in interactions

Table 4. The Payoff Matrices Used in the Strategy Tournament (Study 2).

		Prisoner's Dilemma	
		Player 2	
Player 1		C	A
	C	3, 3	−3, 5
	A	5, −3	0, 0
		Chicken	
		Player 2	
Player 1		C	A
	C	3, 3	0, 5
	A	5, 0	−3, −3
		Assurance	
		Player 2	
Player 1		C	A
	C	5, 5	−3, 3
	A	3, −3	0, 0
		Maximizing Difference	
		Player 2	
Player 1		C	A
	C	5, 5	0, 3
	A	3, 0	−3, −3

Note. C = conciliatory; A = aggressive. In each cell, the number on the left is the payoff to Player 1 and the number on the right is the payoff to Player 2.

with other cooperative individuals. A competitive approach may contribute to individuals' accumulated wealth by exploiting cooperative individuals and protecting against exploitation by other competitive individuals. Study 2 used a round-robin tournament, where each participant meets all other participants in turn to investigate CTs' downstream consequences. The tournament approach allows exploring the success of different strategies in an environment where many different actors strategize to do well (Axelrod, 1981). All participants in Study 2 first reported how much the PD, Chicken, Assurance, and MD games captured their view of two-person negotiation situations. A week later, they participated in the strategy tournament, as explained subsequently. Study 2 used individuals' CTs at Time 1 to predict their accumulated wealth in the tournament at Time 2; it also explored in what situations CTs predicted economic success.

Method

Participants

We recruited 103 master of business administration students at Stanford University (61.2% male). These participants

represented a wide range of national cultures and professional backgrounds. Participants took part in a survey and submitted strategies for the tournament as part of an elective course on negotiation. Ten copies of a negotiation book served as a prize for the top 10 performers in the tournament. In addition, the complete results of the tournament were available to all the participants, which further motivated participants to do well. CTs were assessed online using the same measure employed in Study 1, approximately 1 week before the tournament.[2]

The Strategy Tournament

Participants received detailed instructions for the tournament in advance; they also had access to the tournament website and could use the software's test mode to try out various strategies against preprogrammed strategies (e.g., tit for tat). Unlike previous strategy tournaments, in which participants submitted strategies for a single type of interaction (e.g., PD: Axelrod, 1981), participants in Study 2 submitted strategies for PD, Chicken, Assurance, and MD.[3] Table 4 presents the payoffs, ranging from −3 to 5 points, used in the tournament.

The tournament software allowed participants to submit strategies that varied in complexity. Participants could submit simple, unconditional strategies (e.g., always cooperate) or contingent strategies that determined the probability of cooperation in each round as a function of the history of the interaction (e.g., do the opposite of the counterparty's behavior in the last round). Participants had to submit strategies separately for each of the four payoff matrices; however, they could make their contingent strategies conditional on the history of the interaction in any subset or all of the four payoff matrices.

With 103 participants, the tournament included 5,253 unique matches (interactions between two given participants). To increase the robustness of the results, each unique match included 100 separate repeated games. The number of rounds within each game was not fixed in advance; rather, participants knew that there was a 5% chance that each round would be the last round of each repeated game. In each round, the software randomly chose one of the four payoff matrices (PD, Chicken, Assurance, or MD) to be played, with equal probabilities. The average number of rounds actually played in each repeated payoff matrices, given this stochastic process was 24. Overall, this procedure resulted in a total of 12,643,971 interactions (i.e., rounds).

Participants submitted their strategies during class, independently and without communicating with each other. Our main dependent variable was the average profit per round in the tournament; we also calculated the average profit per round in each of the four payoff matrices separately to explore in what situations CTs predicted economic performance.

Results and Discussion

Economic performance, operationalized as average profit per round, ranged from a high of 2.49 points to a low of 0.72 points ($M = 1.82$, $SD = .41$). Thus, over 4 *SDs* separated the best and worst performers in the tournament. Endorsements of MD

($M = 3.20$, $SD = 1.09$) significantly predicted overall economic performance in the tournament, $r = .26$, $p = .009$, as well as economic performance in the MD rounds of the tournament, $r = .28$, $p = .004$. Endorsements of the PD ($M = 3.59$, $SD = 1.03$), Chicken ($M = 3.51$, $SD = .98$), and Assurance games ($M = 3.19$, $SD = 1.03$) were uncorrelated either with overall economic performance or with performance in any of the four payoff matrices ($r < .18$, $p > .05$ for all).

A bias-corrected bootstrapping mediation analysis found a significant indirect effect of endorsement of MD on overall economic performance in the tournament via economic performance in the MD rounds of the tournament (95% confidence interval: [.04, .17]). These findings demonstrate that a cooperative approach is conducive for wealth accumulation in repeated interactions with a large number of counterparties and that the economic benefits of seeing negotiation as an MD game are materialized through the enhancement of joint gains in interactions characterized by high goal compatibility.

General Discussion

The current research has three main findings. First, Study 1 demonstrated strong situational effect on CTs, with deal-making negotiation producing more competitive perceptions than other types of situations. Second, we documented strong individual consistency in endorsement of CTs across time and situations; cross-situational consistency was particularly strong for individuals' thinking about their real-world, naturally occurring interactions. Third, Study 2 found that endorsement of the highly cooperative MD game positively predicted wealth accumulation in repeated interactions of different kinds with a large number of counterparties. This positive effect materialized through enhanced ability to capture gains in interactions that allowed maximization of joint profits. This highlights important downstream consequences of CTs. Taken together, these findings enhance our understanding of individuals' thinking and behavior in social interactions.

Theoretical and Methodological Implications

Our findings support a synthesis of personality and social psychological research by showing that situational effects on the mean endorsement of CTs at the sample level can coexist alongside meaningful individual consistency in relative endorsement of CTs across time and situations (Fleeson & Noftle, 2009; Funder, 2009). These findings were made possible by the methodology employed in Study 1, which integrated experimental manipulations of social interactions with a longitudinal diary design.

Outcome interdependence is a defining characteristic of all interactions and relationships, from romantic love, raising children, and maneuvering in a bureaucracy or in a traffic jam, to business negotiations, criminal deterrence, strikes, and wars (Schelling, 1960). Therefore, the games that people think they are playing have important implications for numerous everyday decisions (e.g., how to interact with a rude colleague) as well as less mundane choices (e.g., how to negotiate a job

offer). The current findings enhance our understanding of social interactions by explaining patterns of consistency and change in people's thinking about outcome interdependence and linking these patterns to long-term economic success.

An interesting theoretical and methodological question concerns the use of continuous dimensions versus discrete games to describe social interactions. The positive correlations between endorsements of PD and Chicken, as well as between endorsements of Assurance and MD, raise the possibility that lay thinking about social interactions is shaped primarily by perceptions of conflict of interest (i.e., goal incompatibility). We adopted interdependence theory's perspective, which uses discrete games (Kelley et al., 2003) and at the same time differentiates among them along several dimensions of outcome interdependence (Reis, 2008). Thus, we use discrete games to assess our main construct, CTs, and at the same time conceptualize CTs as competitive or cooperative based on the correspondence of outcomes in the game, which is "the single most important property of any matrix" (Kelley & Thibaut, 1978, p. 117). Future research may further explore the costs and benefits of using either discrete games, underlying dimensions, or both, to investigate people's thinking about social interactions.

Practical Implications

Individuals commonly and intuitively think about how their actions can help or hurt each other, which is the essence of outcome interdependence. CTs constitute a critical first stage in interdependent decision making during which decision makers define the nature of the situation; these mental models of the situation then influence how individuals formulate strategies and take actions to pursue their interaction goals (Kelley & Thibaut, 1978; Kreps, 1990; Rubinstein, 1991). A deeper understanding of individuals' thinking processes in social interactions will allow negotiators, mediators, and other conflict managers to better predict and influence others' perceptions and actions and devise effective strategies to meet their interaction goals.

Declaration of Conflicting Interests

The author(s) declared no potential conflicts of interest with respect to the research, authorship, and/or publication of this article.

Notes

1. Study 1 also assessed personality variation along six dimensions: Humility (H), Emotionality (E), Extraversion (X), Agreeableness

(A), Conscientiousness (C), and Openness to Experience (O) (HEXACO) dimensions (Ashton & Lee, 2007). Of the 144 correlation coefficients relating personality and strategic thinking (6 Personality Dimensions × 4 Games × 6 Weeks), only 9 were statistically significant, and all were weak ($r < .30$ for all). Thus, although we document notable within-person consistency across time and situations, individual differences in endorsement of conflict templates (CTs) are distinct from personality variation along the six HEXACO dimensions.

2. We also assessed social value orientation (SVO) using the slider measure (Murphy, Ackermann, & Handgraaf, 2011). SVO scores did not correlate either with endorsement of CTs or with economic performance in the tournament and are not discussed further.

3. Two Stanford colleagues, Jonathan Bendor and Barry Wohl, devised a tournament based on heterogeneous interactions (PD, Chicken, and two asymmetric games) several years ago. They ran this tournament in two negotiation courses; they did not, however, publish their results.

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