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RESEARCH REPORT

On the Relative Importance of Individual-Level Characteristics and Dyadic Interaction Effects in Negotiations: Variance Partitioning Evidence From a Twins Study

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Negotiations are inherently dyadic. Negotiators' individual-level characteristics may not only make them perform better or worse in general, but also may make them particularly well- or poorly-suited to negotiate with a particular counterpart. The present research estimates the extent to which performance in a distributive negotiation is affected by (a) the negotiators' individual-level characteristics and (b) dyadic interaction effects that are defined by the unique pairings between the negotiators and their counterparts. Because negotiators cannot interact multiple times without carryover effects, we estimated the relative importance of these factors with a new methodology that used twin siblings as stand-ins for each other. Participants engaged in a series of 1-on-1 negotiations with counterparts while, elsewhere, their cotwins engaged in the same series of 1-on-1 negotiations with the cotwins of those counterparts. In these data, dyadic interaction effects explained more variation in negotiation economic outcomes than did individual differences, whereas individual differences explain more than twice as much of the variation in subjective negotiation outcomes than did dyadic interaction effects. These results suggest dyadic interaction effects represent an understudied area for future research, particularly with regard to the economic outcomes of negotiations.

Keywords: bargaining, dyadic interaction effects, individual differences, negotiations, social relations model

Organizations entering negotiations must consider not only how best to negotiate, but also whom they should send to do the negotiating. The question of whom to send is addressed by research on the individual differences that predict negotiation performance. Despite decades of effort, scholars have struggled to isolate specific characteristics that predict negotiation success consistently (Sharma, Bottom, & Elfenbein, 2013). Although there is evidence that individual differences explain a large proportion of the variance in negotiated outcomes (Elfenbein, Curhan, Eisenkraft, Shirako, & Baccaro, 2008), research on the relationship between a person's characteristics and negotiation outcomes has produced inconsistent results (Barry & Friedman, 1998; Bazerman, Curhan, Moore, & Valley, 2000; Thompson, 1990). The same personality traits and characteristics that predict job performance across a wide range of industries and positions (Barrick & Mount, 1991; Ones, Viswesvaran, & Schmidt, 1993) do not appear to be consistent and substantial predictors of negotiation success in the body of research conducted to date.

The current paper asks whether traditional research on individual differences in negotiation has been limited by its focus on the negotiator in isolation. Negotiations are inherently dyadic—or, in some cases, multiparty—interactions. Thus, individual-level characteristics may not only make somebody a better or worse negotiator in general, they may also make leave them particularly well- or poorly-suited to negotiate with a particular counterpart. Kelley and Stahelski (1970) argued along these lines when they pointed out that a cooperative orientation leads to positive outcomes only

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when it is met with a cooperative orientation from the counterpart. Other research on the potential interaction between negotiators' and counterparts' characteristics has examined within-culture versus cross-cultural dyads (e.g., Gelfand & Brett, 2004), same-sex versus other-sex dyads (e.g., Kray & Thompson, 2004), and similarity in personality traits (Wilson, DeRue, Matta, Howe, & Conlon, 2016).

This paper examines to what extent these specific findings foretell the potential overall importance of dyadic interaction effects, defined by the unique pairings between the characteristics of negotiators and the characteristics of their counterparts, that is, *Negotiator* × *Counterpart* (N × C) effects. For example, based on Kelley and Stahelski (1970), in a distributive negotiation, two individuals high in competitiveness are likely to end up with middle-level outcomes (if not an impasse), and similarly two individuals low in competitiveness are likely to end up with middle-level outcomes. However, a pairing of one individual high and one low in competitiveness is likely to yield a lopsided outcome,[1] which would produce an N × C effect.

How does the overall importance of dyadic interaction effects compare to the overall importance of individual differences that have captured so many decades of research interest? Should organizations try to identify their best negotiators on an absolute basis, or is the best negotiator a function of the counterpart sitting on the opposite side of the bargaining table?

Individual Differences in Negotiation

Negotiator Effects

The most commonly studied model of individual differences is the straightforward notion that a person's personality, abilities, and other traits predict that person's negotiation performance. Many types of traits have been tested—including demographic characteristics, abilities, personality, enduring motivations, and enduring expectations and beliefs. Traits from each of these categories have been associated with negotiation outcomes, with varying success, especially with regard to the economic outcomes of negotiations (for reviews, see Elfenbein, 2013, 2015).

Counterpart Effects

Less often studied has been the notion that individual differences influence the performance of one's negotiation counterpart. This imports a classic idea from personality psychology: namely, that part of personality is what we tend to do and part of personality is what we tend to elicit other people to do (Buss & Craik, 1983; Funder, 2009; Reis, 2009; Mischel, 2004). Research in particular on abilities in negotiation has established counterpart effects—namely, that those higher in various types of intelligence help their counterparts to achieve better negotiation outcomes (Sharma et al., 2013).

Dyadic Interaction Effects in Negotiation

The present paper compares the total magnitude of the individual difference effects discussed above to the total magnitude of dyadic interaction effects, which we call Negotiator × Counterpart effects. In doing so, it presents a general model of how people's characteristics give them a unique advantage or disadvantage based on the characteristics of their counterparts.

We ground our general model of Negotiator × Counterpart (N × C) interaction effects by importing psychological concepts from research on Person × Situation (P × S) interactions. According to this literature, different situations have the potential to change the association between a negotiator's personal characteristics and their outcomes (Bowles, Babcock, & McGinn, 2005; De Dreu & Carnevale, 2003). Just as the features of a stable, exogenous situation can serve to elicit or constrain behaviors, so too can the unique person in front of us. The mere presence—or even imagined presence—of a partner can elicit a range of expectations from a negotiator. Because of the influence of accurate and inaccurate information about a counterpart—including reputations, stereotypes, and status characteristics (Berger, Fisek, Norman, & Zelditch, 1977)—these expectations can alter a negotiator's behavior, in the absence of anything different that the counterpart actually does. People also react to and learn about each other during an interaction. Counterparts often reciprocate each other's behavior (Axelrod, 1984; Brett, Lytle, & Shapiro, 1998; Deutsch, 1973; Putnam, & Jones, 1982; Weingart, Thompson, Bazerman, & Carroll, 1990). Particularly given the mixed-motive nature of negotiation, parties often deliberately mismatch their behavior as well (Bateman, 1980; Butt, Choi, & Jaeger, 2005). As such, individual differences set a tone up front that leads to a cascade of responses and counterresponses. To the extent that individual differences may guide a negotiator's default way of being, the link between that way of being and the negotiator's outcomes can depend on the counterpart's characteristics.

We hypothesize that negotiation outcomes reside in part at the dyadic relationship level, and that they are emergent beyond the mere assembly of individuals. Just as Person × Situation (P × S) effects suggest that specific situations will change the association between a negotiator's traits and their outcomes, Negotiator × Counterpart (N × C) effects suggest that specific counterparts will also change the association between a negotiator's traits and their outcomes. This model is illustrated in Figure 1, and contains effects on outcomes for negotiator characteristics, counterpart characteristics, and a moderating effect of each party's characteristics on the effect of the other's characteristics. As such, it incorporates the notion that that a negotiator's situation is defined partly by his or her counterpart, and that likewise the counterpart's situation is defined partly by the negotiator.

Note that this is a general model. It does not include hypotheses regarding the interaction of specific variables—which is a decision discussed in the following section—but focuses on the notion that Negotiator × Counterpart effects exist in negotiations alongside individual differences. We are as interested in the magnitude of these effects as much as their statistical significance. One tends to think about interactions with other people as emergent, with results that reflect happenstance as much as destiny. It is provocative, then, to imagine that some of what we consider emergent for a pair may be at least partly explained by the combination of their characteristics and the characteristics of their counterparts. Finding a substantial N × C effect would provide evidence that competitive outcomes are not only a function of individual ability and

[1] We thank an anonymous reviewer for these predictions.

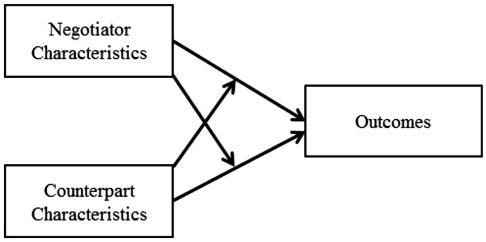

Figure 1. Theoretical model of individual differences and Negotiator × Counterpart interactions in negotiation.

random luck. Negotiators may perform above their typical levels when they face particular opponents, and perform below their typical levels when they face others. Even when a competitor and opponent are unacquainted, the fact that they are facing one another—and not somebody else—could shape the outcome.

Empirical Strategy: Variance Decomposition

Staying at a high level of abstraction, we endeavor to contrast the relative predictive power of individual differences vis-à-vis dyadic effects using the variance decomposition technique of the Social Relations Model (SRM; Kenny, 1994). Instead of identifying and estimating specific Negotiator factors, Counterpart factors, and Negotiator × Counterpart interactions, we use the SRM methodology to calculate the total effect of all of these factors simultaneously on negotiation outcomes. The relative magnitude of these effects will help researchers evaluate to what extent future research on each source should be prioritized.

A variance partitioning strategy estimates the total magnitude of the effects of individual differences using repeated observations. The variance partitioning strategy builds on the widely accepted psychological notion that personality reveals itself as consistency over time in an individual's behaviors (Mischel & Shoda, 1995). When people perform well across a series of independent negotiations, their consistent success suggests they are effective individual negotiators. In contrast, people who do poorly across a series of negotiations reveal themselves to be ineffective negotiators. This person-level consistency across situations is used to estimate the relative importance of all possible personality traits simultaneously.

Elfenbein and colleagues (2008) first applied the variance partitioning strategy for estimating the importance of individual differences in negotiations. The authors used a "round-robin" research design in which participants were assigned to groups and interacted once with each other member of the group, using separate multi-issue negotiations that were ostensibly different and yet identical in their underlying structure. This research design for four-person groups is illustrated in Figure 2. The round-robin data were analyzed using the SRM, which is a multilevel model for interdependent data, to estimate the consistent person-level effect across all of their negotiations. In these mixed-motive exercises, negotiators' individual differences explained 27.6% of the variance in economic value and 6.4% of the variance in subjective value. In their study, it was not possible to estimate further the relative importance of N × C interactions, because they did not have multiple independent observations of each dyad.

We argue that a variance partitioning approach is ideal for establishing the magnitude of Negotiator × Counterpart effects vis-à-vis individual differences. Studying N × C interactions with a specific trait strategy would involve identifying how specific stable traits of negotiators and counterparts may interact. With dozens—if not hundreds—of combinations of traits to consider, there are an overwhelming number of ways in which the traits of negotiators and their counterparts may combine to affect negotiation outcomes. Finding null results for a particular trait interaction would reveal little about the magnitude of the overall N × C interaction model; it could only speak to the existence of that one interaction of many. Thus, we argue for the value of establishing at a high level the predictive power of the model of N, C, and N × C as a whole. Testing the model in Figure 1 at this level of abstraction, we examine the relative contribution to effective negotiation performance of the typical outcomes of each individual and their systematic unique pairing.

An Empirical Conundrum Addressed With Twins as Stand-Ins

A variance partitioning test of individual differences and N × C effects involves a certain conundrum: In order to demonstrate that an effect of negotiators' pairing is systematic rather than resulting from chance variation, the pair of negotiators would need to interact together multiple times. However, as the Greek philosopher Heraclitus once argued, a person cannot step into the same river twice. Relationships have history, and one cannot engage in two independent negotiations with the same counterpart. The idiosyncratic aspects of the first interaction could carry over into the second interaction, which would artificially create the appearance of a consistent interaction effect. Carry-over effects could represent a stable equilibrium that is developed between the two parties, or could alternatively represent an attempt to compensate during a second encounter for what occurred in the first. Having an inde-

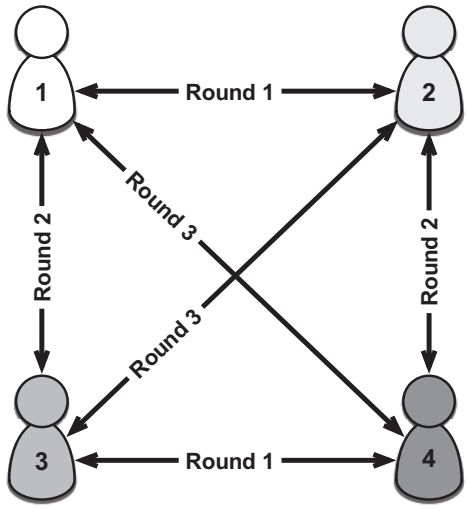

Figure 2. Round-robin research design. Solid lines indicate partners for one-on-one interactions. Numbers for rounds indicate the chronological order of the interactions. All individuals served interchangeably as negotiators and counterparts.

pendent experience, as opposed to an ongoing experience, distinguishes the current research from repeated negotiations that have been examined in past work (e.g., Curhan, Elfenbein, & Eisenkraft, 2010).

In this study, we attempt to account for the conundrum using a novel design that examines the independent experiences of individuals and their twin siblings. The similarity of twins makes them ideal to investigate our hypothesis: although it is never possible to step in the same river twice, the independent experiences of twins may reveal what happens when two similar people step into two similar rivers.

Twins are highly similar to their cotwins. So-called "identical" or *monozygotic* twins share nearly the same genetic sequence, whereas "fraternal" or *dizygotic* twins share approximately half of their genetic sequence, the same as for ordinary siblings. Both types also share similar family environments. This overlap in their genetics and environment creates cross-twin consistency in factors as broad as personality traits, cognitive abilities, social attitudes, psychological interests, and psychopathology (Bouchard & McGue, 2003; Knopik, Neiderhiser, DeFries, & Plomin, 2016). Indeed, the finding that twins are similar has replicated so widely that the presence of genetic influences on essentially every individual difference variable has become known as the "First Law" of behavioral genetics (Turkheimer, 2000). Note that the current study does not estimate genetic versus environmental components of negotiation performance, but rather takes advantage of the cotwin similarity—without concern for whether this similarity has emerged from genetics or family environments. While proposing to study the independent experiences of twins and their cotwins, we emphasize that twins are merely similar—not replications—and they serve as *approximates* or *stand-ins* for each other. The genetic contribution from extensively validated phenotypes usually does not explain more than half of their variance (Turkheimer, 2000). Twins are not exact replicas, and can have unique formative environments from each other, particularly outside the family (Knopik et al., 2016). Thus, any consistency between twin and cotwin will be lower than what we would expect if it were possible to conduct a true replication, which renders our statistical tests highly conservative.

Method

Participants

A community sample of 248 individuals (124 same-sex twin pairs; 80% female; Age: $M = 37.2$, $SD = 16.8$) participated at a festival that has been used in past twin research (e.g., Cesarini et al., 2008). The Twins Day Festival in Twinsburg, Ohio provides an ideal recruiting opportunity because it is intended to celebrate the participants' status as twins. As such, participants represent a best-case context in which to recruit twins to serve as stand-ins for each other. To provide incentives for effective performance, participants were compensated \$20/\$10/\$5/\$1 for negotiation scores in the 1st/2nd/3rd/4th quartiles, respectively. One individual left the study due to a health problem, so both he and his cotwin were removed from analysis.

Procedure

The festival has a dedicated research area, which is a separate section of the festival that attendees enter freely to review and take part in festival approved studies such as ours. Institutional Review Board approval for the study included a signed consent form (Washington University Committee for the Protection of Human Subjects protocol no. 201103107, "Study of Workplace Skills in a Twin Sample").

Demographic variables. Participants completed a one-page questionnaire including self-reported demographic variables. Their education level was: less than high school (2%), high school (19%), some college (24%), college degree (38%), and advanced degree (17%). Their professional status was: employed full-time (43%), employed part-time (20%), student full time (20%), and not employed (16%). Thirty-eight percent of the participants lived in the same residence as their twin at the time of the study.

Also included was a self-report of twin zygosity (83% monozygotic, 13% dizygotic, 4% unsure), and a five-item zygosity questionnaire that has been previously shown to exceed 95% accuracy with respect to DNA testing (Lykken, Bouchard, McGue, & Tellegen, 1990), $M = 7.22$, $SD = 5.17$, on a scale from -16 to 10, where 4 and above is classified as monozygotic. These two sources for zygosity converged in 93% of cases. Because analyses include some dizygotic and unclassified twin pairs, the test is more conservative than if the sample consisted of only monozygotic twins. We did not limit our sample to only monozygotic twins because, as explained in the following section, eliminating data from one pair of dizygotic twins would require also removing data from the approximately three monozygotic twins with whom they negotiated. However, we also note that no findings meaningfully change if we include only data from groups of identical twins.

Unacquainted twins round robin design. We introduce the *unacquainted twins round robin design (UTRR)* to conduct variance partitioning of N, C, and N $\times$ C effects in negotiations. The UTRR design is an extension of the variance partitioning strategy that has been used to study the effect of individual differences. Two round robins like those in Figure 2 take place simultaneously, as illustrated in Figure 3. Data collection included eight individuals at a time, consisting of four pairs of same-sex twins. Cotwins were separated to create two distinct four-person round robins of unacquainted individuals. Each person sequentially engaged in one-on-one interactions with each of the other three people in their group. At the same time, that person's cotwin engaged in the same series of interactions with the cotwins of their counterparts. For example, twins 1A and 2A negotiated while their cotwins 1B and 2B simultaneously conducted the same negotiation outside of earshot.

Negotiation task. Participants negotiated with one another according to the unacquainted twin round robin design described above. Each person engaged in three simple yet realistic exercises: negotiations focused on the price of used furniture that was no longer available new (Curhan, Eisenkraft, & Elfenbein, 2013). Each party had the option to buy from (or sell to) a used furniture store if they could not reach a deal with their counterpart. The amount that would be charged (or paid) by the store was private information not known to the counterpart. The store's purchase price was less than its selling price; these two numbers set the parties reservation values—that is, the value at which the parties would be better off walking away than accepting the deal. Both

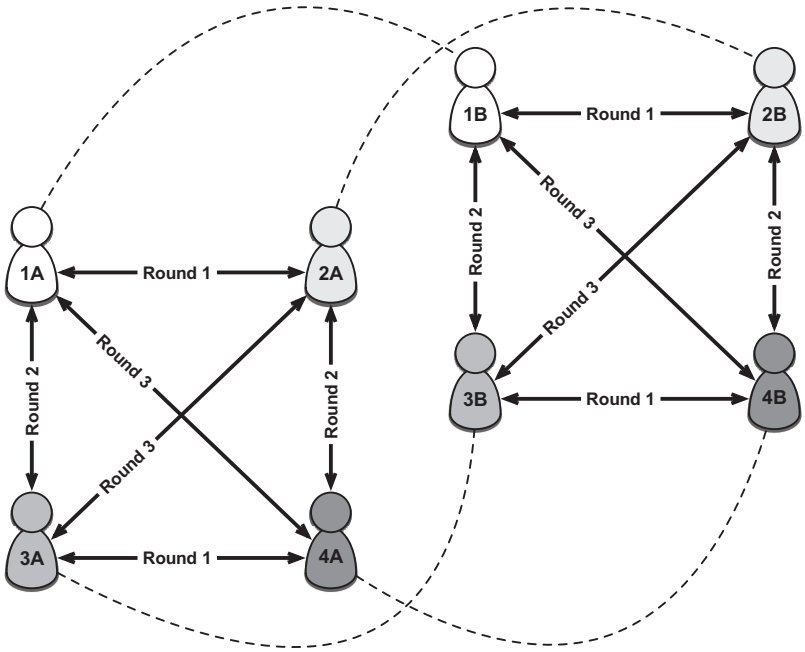

Figure 3. The unacquainted twins round-robin (UTRR) design. Solid lines indicate partners for one-on-one interactions. Dashed lines indicate cotwins, who were separated to another location and did not interact with each other during the study. Numbers for rounds indicate the chronological order of the interactions. All individuals served interchangeably as negotiators and counterparts.

parties were better off transacting with each other than reaching an impasse. Price was the only negotiation issue. Participants completed the exercise once each for a table, chair, and lamp. Each participant took turns across their rounds serving as buyers versus sellers. To account for possible role effects, all data were standardized within role separately for each exercise.

Outcome measures. Following each negotiation, participants recorded whether or not they had reached a deal and, if so, the agreed upon price. After the data were standardized within role, this served as the negotiator's economic value. Participants also completed 5 questions about their subjective value (Curhan, Elfenbein, & Xu, 2006; 7-point scale, $M = 5.57$, $SD = 0.96$, $\alpha = .81$). This measure follows Curhan et al.'s (2006) model of subjective value as the subjective satisfaction with one's negotiation experience, which includes satisfaction with oneself, the instrumental terms, the process, and the relationship with the counterpart.

Results

Social Relations Model

Given the round-robin structure of our data—in that each participant negotiated with each of the other participants in their group—we use the Social Relations Model (SRM; Kenny, 1994; Lashley & Bond, 1997) for data analysis. The data produced by the round-robin design comprised a set of square matrices, one for each group of four people. There is one row for each negotiator and one column for each negotiator. The diagonal values of the square matrix are missing, because people do not negotiate against themselves. For the economic outcomes of negotiations, the matrix has negative symmetry above and below the diagonal, because one person's loss is the other person's gain in a distributive exercise. In the case of subjective value, the matrix is not necessarily symmetric, because individuals do not necessarily converge perfectly in the feelings that they have about working together. Using these data, the SRM does the equivalent of ANOVAs for each group, while adjusting for interdependence of data points and the missing diagonals.

The SRM partitions the total variance of bargaining performance into four components: (a) actor effects, which correspond in our data to *Negotiator* effects; (b) partner effects, which correspond to *Counterpart* effects; (c) relationship effects, which correspond to *Negotiator* × *Counterpart* dyadic interaction effects; and (d) measurement error. Previous investigations would not have been able to differentiate Negotiator × Counterpart effects from error because they did not have multiple independent observations of the same dyadic interaction.[2] Our investigation makes this distinction through the use of twin pairs as independent observations. The SRM also estimates dyadic reciprocity—that is, the correlation between the outcomes within each dyad—and actor–partner reciprocity—that is, the correlation between the Negotiator and Counterpart effects in our data. These reciprocity correlations are not theorized, but we report them for completeness.

[2] Note that other studies using the SRM design can separate dyadic effects if they use multiple measures that do not have carryover effects, for example, split-half of survey measures. This was not the case for negotiation performance, which is effectively a single-item measure. This is why the twins design was a necessary feature of our work.

Table 1
Variance Partitioning of Negotiation Outcomes

Outcome	Negotiator	Counterpart	Negotiator × Counterpart interaction	Error	Dyadic reciprocity	Negotiator/Counterpart reciprocity
Impasses removed from analysis						
Economic value	9.2%***	9.2%***	24.8%***	56.8%	−1.00***	−1.00**
Subjective value	28.5%***	4.8%**	12.7%***	54.0%	.57***	.78***
Impasses replaced with reservation values						
Economic value	8.4%***	4.2%**	22.6%***	64.9%	−.73***	−.93*
Subjective value	26.5%***	2.3%**	8.2%***	63.0%	.17	.92***

Note. A small number of the negotiations ended without an agreement (5%), and so we conducted the analyses twice. In the first version, we removed impasses from analyses; in the second version we assigned the negotiator's reservation values for impasses (i.e., the store's buying/selling price) as the economic outcome. We prefer the first set of analyses because excluding impasses preserves the perfect negative reciprocity that characterizes the economic outcomes of distributive negotiations.
* $p < .05$. ** $p < .01$. *** $p < .001$.

Table 1 shows the results of the SRM analyses. The variance estimates from the SRM can be interpreted akin to R^2 values; they explain the proportion of total variation that can be attributed to each type of effect. These results suggest there is significant evidence of Negotiator, Counterpart, and dyadic Negotiator × Counterpart effects for both economic and subjective value. As discussed above, it is important to note that these results are conservative estimates of these effects because twins, of course, are not perfect replications of one another. As such, estimates for all effects are more conservative than reality and should also be smaller than estimates reported in Elfenbein et al.'s (2008) analysis. We estimate the potential true size of the Negotiator, Counterpart, and Negotiator × Counterpart effects after describing the main results.

Impasses were reached in 5.2% of negotiations. Because of the potential influence of these impasses as outliers, we conducted all analyses both excluding impasses and including impasses with parties' reservation values as their scores. Results are reported below while excluding impasses and, for reference, results where impasses are replaced with the reservation value appear additionally in the tables. We focus on the results excluding impasses because these data preserve the negative symmetry that characterizes the economic outcomes of distributive negotiations.

Individual Differences: Negotiator and Counterpart Effects

First, we examined the main effects for negotiators and counterparts. Because of the distributive nature of the exercise, the magnitude of the negotiator and counterpart effects are identical because the strictly zero-sum nature of the simulation made participants' scores perfectly negatively correlated—which is acceptable within the SRM. Negotiator and Counterpart effects each explain 9.20% ($SE = 2.19\%$, $t = 4.19$, $p < .001$) of the variance in economic value, for a total of 18.40% explained by individual differences. This indicates that some individuals are better negotiators than others, on average across their counterparts. Negotiator effects explain 28.4% ($SE = 5.1\%$, $t = 5.59$, $p < .001$) of the variance in subjective value and Counterpart effects explain an additional 4.80% ($SE = 1.84\%$, $t = 2.61$, $p = .005$). The subjective value results indicate that negotiators tend to feel similarly across different negotiations and, to a lesser extent, that negotiators tend to elicit the same feelings from different counterparts.

Interaction of Negotiator × Counterpart

Turning our attention to dyadic effects, the SRM analysis estimates that Negotiator × Counterpart interaction effects explain 24.8% ($SE = 3.64\%$, $t = 6.80$, $p < .001$) of economic value and 12.7% ($SE = 1.84\%$, $t = 6.88$, $p < .001$) of subjective value. The proportion of economic value explained by the $N \times C$ effects is significant and, by the benchmark of Kenny (1994), moderately large in magnitude. Indeed, for economic outcomes, it is larger than the person-level effects that have been the subject of research attention for decades. These results indicate that cotwins tended to be similar to each other in terms of which counterparts they did well versus poorly against. They also tended to be similar to each other in terms of which counterparts they found particularly satisfying versus dissatisfying, though these effects are smaller in magnitude than for individual differences. Both effects indicate that the individual differences of the negotiators appear to interact with their counterpart's individual differences—which leads systematically to different outcomes based on the idiosyncratic pairing of negotiator and counterpart.

Potential True Size of Negotiator × Counterpart Effects

As noted earlier, our research design underestimates the size of Negotiator × Counterpart effects because twins are not perfect replications of one another. We can assess the extent of this underestimation by looking at how much treating twins as stand-ins underestimates the Negotiator and Counterpart effects. In particular, we ran the SRM analysis as if the set of 248 participants were independent of each other, rather than 124 pairs of twins. Taken together, these analyses below suggest that the $N \times C$ coefficient reported in this paper is likely to be an underestimate of the true effect.

When twins are not treated as stand-ins, Negotiator effects and Counterpart effects each explain 15.7% ($SE = 3.24\%$, $t = 4.84$, $p < .001$) of the variance in economic value. These effects are 1.71 times larger than the 9.20% of variance explained by each when twins are treated as stand-ins. Applying the same multiplier to our underestimated Negotiator × Counterpart result of 24.8%, we speculate that Negotiator × Counterpart may explain as much as 42.3% of the variance in economic value.

Turning to subjective value, Negotiator effects explain 36.3% (SE = 6.53%, t = 5.56, $p < .001$) of the variance in subjective value when twins are not treated as stand-ins, and 1.27 times larger than the estimate of 28.5% for when twins are treated as stand-ins. The size of this multiplier suggests that twins are relatively better stand-ins for one another with regard to subjective value than with regard to economic value. Applying the multiplier, we estimate that the true size of the N × C effects for subjective value may be 16.2% rather than the originally estimated 12.7%.

Twin Convergence

Without estimating the genetic versus environmental components of negotiation performance—because of the sampling of primarily identical twins—we note that the cotwin convergence was $r = .38$, $p < .001$ for objective value, $r = .39$, $p < .001$ for the subjective value that negotiators experienced, and $r = .13$, $p = .15$ for the subjective value that negotiators elicited in their counterparts.

Discussion

Using a novel design in which twin siblings served as stand-ins for each other, we estimated the relative importance of individual negotiator characteristics and the dyadic interaction effects created by the unique pairing of negotiator and counterpart. Dyadic interaction effects appear to explain more variation in economic outcomes than did the individual difference effects that have been the subject of decades of research. For subjective value, dyadic interaction effects explain approximately half as much variation as individual differences did. Although they are the subject of few empirical investigations, our results suggest that dyadic Negotiation × Counterpart interaction effects represent an underappreciated area for further development of the negotiation field, particularly with respect to economic outcomes.

One of the major limitations of our study is that the variance partitioning results describe a black box effect. We measured the size of this black box, but were not able to shed light on the theory-driven behavioral mechanisms that lie within. As discussed above, research to date has examined match versus mismatch for culture, gender, extraversion, and agreeableness. Future research can expand on this foundation with theory-driven hypotheses around additional characteristics as well as specific pairings of traits. Cross-trait pairings aside from match versus mismatch can be examined. For example, competitive negotiators may perform better against individuals who are less intelligent, and Machiavellian negotiators may perform better with counterparts high in need for affiliation. Ideally, the current results could provide a nudge to expand the range of traits and cross-combinations examined.

Another limitation of the study is its use solely of a distributive negotiation. This choice was made in the interest of having a brief protocol that was easily understood by a diverse community sample. However, it came at the expense of being able to examine dyadic interaction effects in a more complex integrative negotiation setting with the opportunity to create value by uncovering room for tradeoffs and hidden compatibilities. Given the importance of relationship factors such as trust and rapport, dyadic interaction effects might even be even more important in such settings.[3]

Our study sets the stage for research on dyadic effects in interactions other than negotiations. Just as Person × Situation effects are not restricted to a limited set of specific situations, dyadic interaction effects may emerge whenever two people interact. In organizations, theorizing about dyadic interaction effects may generate new insights into how individual differences and dyadic interaction effects influence a range of different situations, such as relationships between leaders and subordinates (e.g., Bauer & Green, 1996) or between members of work teams (e.g., Klein, Lim, Saltz, & Mayer, 2004). More broadly, we speculate that many of the friendships and frustrations we have with other people may be dictated, in part, by the ways in which our characteristics complement or clash with the characteristics of our counterparts.

Our study also provides a methodological foundation for research on dyadic interaction effects outside of negotiations. The unacquainted twins round robin (UTRR) design we developed can be used to measure the variance explained by individual differences and dyadic interaction effects for any dyadic interaction that can be implemented multiple times. Although this research design requires a specialized population, the participants we recruited were unusually eager to participate in scientific studies. Many of our participants expressed pride in the unique role that they, as twins, can play in the development of scientific knowledge.

Future studies may also use the UTRR design to estimate the different levels of convergence for monozygotic versus dizygotic twins. Finding more convergence for monozygotic twins would reveal the extent to which individual differences and/or dyadic interaction effects have a genetic basis. Alternately, monozygotic twins raised together could be compared with monozygotic twins raised apart. Conducting separate round robins with these two samples could, therefore, start to reveal the extent to which individual differences are shaped by genetic or environmental forces.

Our findings on the importance of dyadic interaction effects suggest that interpersonal interactions that feel emergent may be, to some extent, predictable. Unbeknownst to us, the outcomes of unique interactions may—as a result of dyadic interaction effects—be *predictably idiosyncratic*. Recall, for example, the biblical story of David and Goliath (Gladwell, 2013). How could an unarmed youth defeat the mightiest champion of the Philistine army? Perhaps this miraculous result was not as unlikely as it initially appears. Although David was a poorly trained warrior, he had highly developed skills at throwing rocks from his experience as a shepherd. Goliath, in contrast, was a mighty warrior, but had an unusually large forehead. It may have been the unique combination of David's rock-throwing skill and Goliath's large forehead that proved deadly for the giant. David may have performed well above his ability—and, perhaps, could have become the favorite to win the battle—simply because he was competing in particular against Goliath. In this story, as in our data, the dyadic interaction effect was more powerful than the parties' individual differences.

[3] We thank an anonymous reviewer for this point.

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