ncmr

negotiation and conflict management research

VOLUME 14 • NUMBER 2 • MAY 2021

INTERNATIONAL ASSOCIATION
IACM
FOR CONFLICT MANAGEMENT

Negotiation and Conflict Management Research
The Official Journal of the International Association for Conflict Management | iafcm.org

ONLINE ISSN: 1750-4716

For submission instructions, subscription, and all other information visit https://lps.library.cmu.edu/NCMR/

negotiation and conflict management research

INTERNATIONAL ASSOCIATION IACM FOR CONFLICT MANAGEMENT

Negotiation and Conflict Management Research

Too Many Cooks Spoil the Broth: Toward a Theory for How the Tragedy of the Anticommons Emerges in Organizations

Matthew W. McCarter [1,2], Shirli Kopelman [3], Thomas A. Turk [4] and Candace E. Ybarra [4]

1 University of Texas at San Antonio, San Antonio, TX, U.S.A.
2 Economic Science Institute, Chapman University, Orange, CA, U.S.A.
3 Ross School of Business, University of Michigan, Ann Arbor, MI, U.S.A.
4 Chapman University, Orange, CA, U.S.A.

Keywords
anticommons resource dilemma, tragedy of the commons, social dilemmas, cooperation.

Correspondence
Shirli Kopelman, Ross School of Business, University of Michigan, 701 Tappan, Ann Arbor, MI 48109, U.S.A.;
e-mail: shirli@umich.edu.

doi: 10.34891/r1sv-3h62

Abstract

In organizations, conflict revolves around the use of shared resources. Research on property rights, territoriality, and social dilemmas suggests that to reduce such conflict, organizations could facilitate the psychological privatization of *commons resources*. We introduce a model that helps understand how psychologically privatizing organizational commons resources—to prevent the overuse problem of the *tragedy of the commons* (Hardin, G. *Science*, 162, 1968, 1243)—can lead to the emergence of another resource dilemma. We develop a model that illustrates how resource complexity and group complexity increase psychological marking and defending behaviors. These behaviors potentially lead to a problem of resource underuse—a *tragedy of the anticommons* (Heller, M. A. *Harvard Law Review*, 111, 1998, 621)—in organizational settings. The conceptual model, integrating insights from research on property rights, territoriality, and social dilemmas with law and social psychology, provides a bottom-up behavioral explanation of the emergence of the tragedy of the anticommons in organizations and outlines opportunities for future research.

We dedicate this article as a tribute to Matthew (Matt) McCarter, our colleague and friend, who passed away on July 7, 2019. It was sad to finalize this manuscript without him; it is an honor to publish it in his memory. Matt was passionate about the conceptual model proposed in this article and deeply dedicated to research and teaching that links theory to practice. To learn more about Matt, see the obituary written by The University of Texas at San Antonio (written by Wendy Frost on July 15th of 2019: UTSA Management Professor Matthew McCarter Passes Away; Retrieved November 3, 2019 from https://www.utsa.edu/today/2019/07/story/McCarterObit.html). To learn more about Matt's publications, see Matthew W. McCarter's google scholar page (Retrieved November 3, 2019 from https://scholar.google.com/citations?user=ATbRISoAAAAJ). We thank participants of the Academy of Management (AOM), International Association for Conflict Management (IACM), and International Conference on Social Dilemmas (ICSD) conference participants for feedback on the ideas presented in this article. An earlier version of this manuscript, titled "How Anticommons Resources Emerge through Territorial Conflict in Organizations," was honored by the SIM Division in the Best Paper Proceedings of the 2012 AOM Meeting. We are grateful to Michael Gross, Editor-in-Chief of NCMR, and the NCMR reviewers for constructive feedback that strengthened the contribution of this article. The authors are indebted to Michael Heller, Gerardo Okhuysen, Jone Pearce, and Bart Wilson for their invaluable comments on previous drafts of this manuscript. We hope the conceptual model presented in this article spurs empirical research that promotes cooperation and beneficial management of resources in organizational contexts.

The *tragedy of the commons* (Hardin, 1968) inspired research across the social sciences to examine how eliciting cooperation can improve commons resource management. *Commons resources* are shared resources for which access to users is not restricted, and their use subtracts from the other users' benefit. Examples of natural commons resources include fisheries, forests, and water and oil (Ostrom, 1990), and those in organizational settings include shared budgets (Kramer, 1991), databases (Kumar & van Dissel, 1996), and tourist populations (Ingram & Inman, 1996). The tragedy of the commons (e.g., for overviews, see Feeny et al., 1990; Ostrom, 1990; Ostrom et al., 2002) emerges because access to the resource is open to all, and thus, commons resources are susceptible to overuse and exhaustion.

To mitigate the tragedy of the commons, a variety of structural and behavioral solutions have been identified (for reviews, see Dawes, 1980; Kollock, 1998; Kopelman, Weber, & Messick, 2002). One structural solution, grounded in the property rights, territoriality, and social dilemma literatures, is privatizing the commons resources (Brown, Lawrence, & Robinson, 2005; Smith, 1981; van Dijk & Wilke, 1997). Broadly speaking, privatization involves transferring some or all ownership of an open resource to private parties, such as individuals, teams, or departments (Zahra et al., 2000). Privatization is theorized to encourage efficient and effective management of the commons because, economically, the user incurs not only the benefits but also the long-term costs of its management (Smith, 1981) and, psychologically, the user has an increased social responsibility toward their portion of the commons in the short and long term (van Dijk & Wilke, 1997).

Privatization can be coordinated by a centralized legal authority, as well as informally through psychological ownership (Brown et al., 2005; Pierce, Kostova, & Dirks, 2001). Psychological ownership is relevant to organizations because it can be present with or without formal ownership. As suggested by North (1990), even when a central authority arbitrates disputes of ownership, psychological ownership may remain and motivate individuals to follow informal "rules of the game" about governing the commons that diverge from formal rules. But the problem, and a core idea of the current article, is that the existing research advocating psychological ownership as a solution to managing commons resources assumes psychological owners agree on who should have the authority to restrict access to and use of the commons resource. What happens when psychological owners of a commons resource disagree about how the resource should be managed?

We propose that when multiple individuals psychologically own a commons resource and disagree about how it should be used, the commons resource becomes susceptible to tragic underuse, rather than overuse. An *anticommons resource* is a nonsubstitutable resource over which multiple actors claim rights to restrict access to the resource and no one has an effective privilege of use (Heller, 1998). This article contributes to the literature by introducing a bottom-up behavioral model of the emergence of anticommons resources in organizational settings.

The Problem of Resource Underuse: The Tragedy of the Anticommons

Introduced by Heller (1998), the *tragedy of the anticommons* is a situation where resources are prone to inefficient underuse because too many owners hold rights (or the ability) of exclusion. Anticommons resources are, conceptually, a mirror image of commons resources (Buchanan & Yoon, 2000; Heller, 1998, 2008; Vanneste, Van Hiel, Parisi, & Depoorter, 2006). Whereas commons resources face the tragedy of overuse from users not being able to restrict access (Hardin, 1968), anticommons resources face the tragedy of underuse from users being able to restrict access (Heller, 1998; Michelman, 1967). Thus, resource dilemmas—a subset of social dilemmas—potentially occur at both ends of the property spectrum: commons and anticommons dilemmas (Kopelman, 1999; see Figure 1). The tragedy of the commons represents a *take-some* resource dilemma (Dawes, 1980), whereas the tragedy of the anticommons represents an over-fragmented property regime where individual units are not bundled into a useable resource (Heller, 1998), essentially, a resource no one can take or put into use.

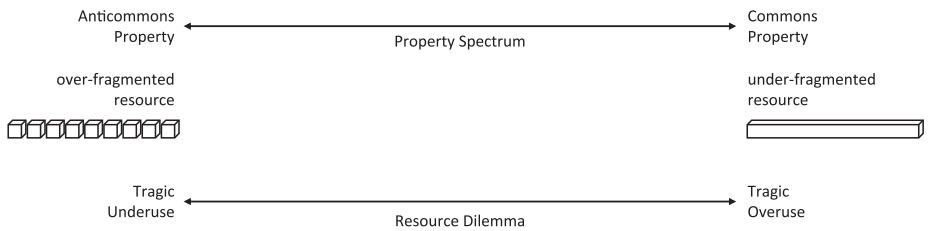


Figure 1. Resource dilemmas at both ends of the property spectrum.

In a take-some dilemma, it is in an individual's self-interest to take as much of the commons resource as possible in the short term; however, if everyone (or enough) chose this strategy, then the commons become overused and everyone is worse off in the long term (Messick & Brewer, 1983). It represents a *social dilemma* because an individual can maximize self-interest by not cooperating (regardless of what others do), but everyone receives a lower payoff if all are noncooperative compared to if they were cooperative (for reviews of social dilemmas, see Dawes, 1980; Kollock, 1998; Kopelman, Weber, & Messick, 2002; Messick & Brewer, 1983; Van Lange, Joireman, Parks, & van Dijk, 2013; Weber, Kopelman, & Messick, 2004). Individual rationality conflicts with what is rational for the group in take-some dilemmas (Dawes & Messick, 2000; Kahan, 1974). Similarly, we suggest that self-interested and therefore individually rational psychological marking behavior can lead to the emergence of a social dilemma at the opposite end of the property spectrum: a tragedy of the anticommons.

Heller's (1998, 1999, 2008, 2011) work primarily takes a top-down approach to anticommons resources emergence and provides examples where central authorities (e.g., the government) arrange formal property rights in such a way that (perhaps unintentionally) creates anticommons resources. The top-down approach Heller offers is one explanation for anticommons emergence: The structure of formal property rights by a central authority creates excessive information and transaction costs (Williamson, 1979) associated with coordinating usage of a shared resource, resulting in that resource being underutilized (Heller, 1998; Heller & Eisenberg, 1998; Parisi, Schulz, & Depoorter, 2005). Examples of the anticommons explained by the top-down approach include Russian storefronts postcommunism (Heller, 1998), innovation in pharmaceuticals (Heller & Eisenberg, 1998), and the failed development of a worldwide human mutation database (Maurer, 2006). Proposed solutions to a top-down approach are institutional in nature (Parisi, Schulz, & Depoorter, 2004; Parisi, Schulz, & Depoorter, 2005).

In the current article, we propose a bottom-up approach to anticommons emergence. Heller and Eisenberg (1998) speculated that anticommons resources can be exacerbated by individuals falling victim to psychological biases (e.g., over-valuing a fragment of property they [perceive to] own), leading them to actions (over-pricing or hold-ups) that unintentionally continue to lock up a resource. However, the psychological and behavioral antecedents of the anticommons resources are hitherto unexplored territory in organizational settings.

Consider the following vignette set in the context of an academic institution where the administration faced a take-some dilemma of the tragedy of the commons; however, unintentionally it transformed into another resource dilemma, the tragedy of the anticommons. The university created a campus-wide intranet for donor information. In the database, each department's advancement administrators could retrieve donor contact information to then approach and request support. However, each department's contact of a donor typically makes that donor less (or un-) able to contribute to other departments, thereby reducing the intranet benefit to the other departments. Thus, it is in each department's interest to contact as many donors as possible. The result is a financially exhausted (and perhaps annoyed) pool of donors reluctant to give in the future. The university sought to navigate the overuse of the donor commons by allowing advancement administrators to mark donors as "taken" or not approachable for later use. This was done by either making notes by the donor's name or limiting the contact and personal

information about the donor. Conflicts arose when several departments viewed a donor as "theirs" and these departments restricted each other's access to the donor's information. The "over-fragmented" intranet to this day is frozen and left unused.

Integrating ideas from research about psychological privatization with self-serving biases, we explore how and why anticommons resources behaviorally emerge from the bottom up in organizational settings. Key to the model developed in this article is the concept of *psychological ownership*, which is defined as "a feeling of possessiveness and of being psychologically tied to an object" (Pierce et al., 2001: 299). Considering the complexity of the environment alongside behaviors of psychological ownership as theoretical mechanisms, we propose a model of anticommons emergence. By proposing a bottom-up conceptual model of anticommons emergence, we contribute theoretically to the understanding of resource dilemmas.

The Proposed Model: Bottom-up Emergence of the Anticommons

Herein, we present a model about how anticommons resources emerge when individuals rationally seek to psychologically privatize a commons resource. Several assumptions underlie the model. One assumption is that the individuals involved psychologically own (portions) of the commons resource. Psychological ownership can emerge through an individual using a resource, associating (or identifying) with a resource, or investing private resources into the development or maintenance of that resource (Pierce et al., 2001). Another assumption is that individuals do not share perceptions about what constitutes appropriate commons governance; a logic of appropriateness, rather than a logic of rationality, prevails (Arora et al., 2012; Kopelman, 2009; March, 1994; Weber, Kopelman, & Messick, 2004). Furthermore, the model assumes that the organizational authority will not step in to adjust and enforce property rights involving the commons (Ostrom, 1990).

The model we propose to better understand anticommons resource emergence in organizational settings illustrates a bottom-up process of the tragedy of the anticommons (See Figure 2). We suggest that characteristics of the commons resource and the group lead to complexity surrounding what constitutes a fair resource distribution. The complex environment increases the likelihood that individuals will be susceptible to viewing the distribution of the resource through egocentric interpretation of fairness and reactive egoism. Viewing the governance of the commons resource egocentrically, individuals mark and defend their psychologically owned portion of the commons. As more of the commons resource becomes marked and defended, an anticommons resource emerges. The carrying capacity of the commons resource moderates the relationship between territorial behavior and anticommons resource emergence. Integrating insights from research on property rights, territoriality, and social dilemmas with law and social psychology, we discuss each section of the conceptual model and the propositions that describe the theoretical mechanisms of a bottom-up behavioral explanation of the emergence of the tragedy of the anticommons in organizations.

Resource Complexity and Egocentric Views of Fairness

The complexity of the commons resource impacts the degree of egocentric view of fairness experienced by individuals. A shared resource can be complex in at least two ways: ease of divisibility and its value distribution. Some shared resources are difficult to divide or "lumpy" (Taylor & Ward, 1982); for example, a commons resource may provide significant benefits to a user only when that individual utilizes a certain amount of it. Using any amount below this critical mass yields no, or very little benefit. When shared resources are easily divisible, it is simple for individuals to use social heuristics to divide it and meet their needs (de Kwaadsteniet, van Dijk, Wit, & de Cremer, 2006). For instance, if a commons resource can be divided easily among six users, then an equal-division rule is often employed with each getting one sixth (Allison & Messick, 1990). Yet, when shared resources are not easily divisible,

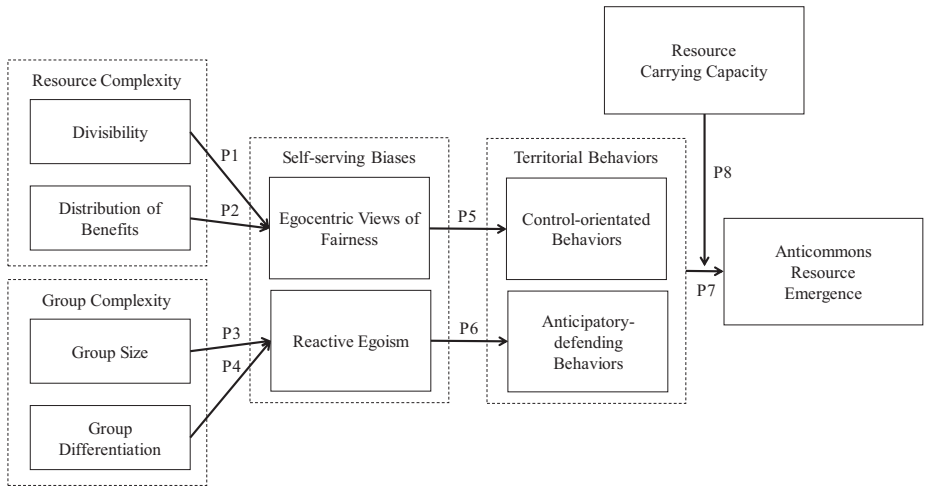


Figure 2. A bottom-up model of how the tragedy of the anticommons emerges in organizations.

uncertainty arises as to what constitutes a fair division (Messick, 1993) and power asymmetry may impact what is considered culturally appropriate behavior (Kopelman, 2009; Kopelman, Hardin, Myers, & Tost, 2019).

A second structural characteristic of a shared resource is the value distribution to users. Often the distribution of benefits of a commons resource is not uniform to users. Some individuals value the resource more (or get more value out of it) than others (Northcraft et al., 1996). With such asymmetry, distributing the shared resource's benefits is challenging. Asymmetric distributions of benefits are more common than symmetric (Murnighan & King, 1992; van Dijk & Wilke, 1993), and, important, because asymmetry generates conflict about what is perceived to be an appropriate and fair distribution of the resource (Bazerman et al., 2000; Wade-Benzoni, Tenbrunsel, & Bazerman, 1996).

As a commons resource becomes more difficult to subdivide, what constitutes its fair distribution becomes complex to discern (Budescu, Rapoport, & Suleiman, 1990; Messick, 1993). Lumpy resources—such as an office-commons with one computer and three users—cannot be easily parceled: Some are left with more than others (Taylor & Ward, 1982). The lumpiness of the resource may increase diverse perceptions of what might be considered appropriate behavior (Arora et al., 2012; Kopelman, 2009; Kopelman et al., 2019; Weber, Kopelman, & Messick, 2004). For example, should computer access be a function of employee tenure, workload, or skill? In such situations, individuals find it cognitively easier to access, retrieve, and process positive information about the situation that favors self-interests (Babcock & Loewenstein, 1997). Consequently, individuals are likely to make judgments through an *egocentric view of fairness* or fairness judgments that favor oneself as compared to others (Paese & Yonker, 2001). Thus, we propose that:

Proposition 1 (P1). *The difficulty in dividing the commons resource increases egocentric views of fairness.*

Proposition 2 (P2). *Asymmetry in the distribution of benefits across potential users of a commons resource increases egocentric views of fairness.*

Group Structure and Reactive Egoism

The complexity of group structure using the commons resource also can influence the tendency of an individual to react egocentrically to others. People often believe they are relatively fair and more

cooperative than others (Krueger & Acevedo, 2007; Messick et al., 1985). As a result, while considering others' needs, contributions, preferences, and interests when allocating resources, people become suspicious that others will be unfair to (and take advantage of) them (Epley, Caruso, & Bazerman, 2006). Reactively, they take steps to protect themselves from others' opportunism (Rockmann & Northcraft, 2008). The "self-serving behavior in reaction to the [perceived] egoistic behavior of others" is termed *reactive egoism* and explains why individuals overuse a commons resource when they think about what others will do (Epley et al., 2006: 873).

As the number of users of a commons resource increases, so does the ambiguity and uncertainty about what those users will do with that resource (Messick & Rutte, 1992). Indeed, social dilemma research (Marinoff, 1999; McCarter, Rockmann, & Northcraft, 2010) suggests that as group size increases, individuals become more concerned with what others will do. Similarly, groups that are fractured into subgroups experience greater competition among subgroups over using a commons resource (Kramer & Brewer, 1984). The reason for the competition is because in-group members (those perceiving to belong to one subgroup) favor their own members while being uncertain about the intentions of out-group members (Brewer & Silver, 1978) and become more competitive with those outgroups (Bornstein & Ben-Yossef, 1994). As group complexity increases, and justification to others diffuses (de Kwaadsteniet et al., 2007), an individual becomes more susceptible to the self-serving bias of reactive egoism. Thus,

Proposition 3 (P3). *The number of potential users of a commons resource increases reactive egoism.*

Proposition 4 (P4). *Group differentiation increases reactive egoism.*

Self-serving Biases and Territorial Behavior

We maintain that the self-serving biases of egocentric views of fairness and reactive egoism lead to territorial behaviors toward a commons resource: potentially excessive marking and defending. Research about territoriality in organizations submits that individuals mark or defend resources without having actual (legal) ownership of them (Brown et al., 2005). While marking and defending a resource can reduce conflict and avoid exploiting an organization's resources (Acheson, 1975), this only occurs when there is agreement about what allocation rules are acceptable among psychological owners (Brown et al., 2005). When there is disagreement about allocation rules, conflict persists. When multiple people perceive they own a resource and disagree on allocation rules, conflict may arise as these individuals seek to (re-)gain control from intruders (Brown & Robinson, 2011). Because different individuals may perceive they own a (portion of a) resource (Alchian, 1977), they may attempt to unilaterally mark and defend, forming de facto property rights over the same portions of a commons resource.

As Brown et al. (2005) suggests, when individuals psychologically own an object, and when there is lack of clarity surrounding what should "belong" to whom, they express that ownership through control-oriented marking and anticipatory defending. Control-oriented marking communicates to others an individual's claim over a resource; for example, stating "this is mine and not yours." Anticipatory defending involves an individual making it difficult for others to access (or, more generally, use) a resource in the future. If it becomes difficult to determine a fair distribution of a resource, it becomes easier for individuals to access, retrieve, and process information that supports their own interests and needs compared to attempting to do the same for others (Messick & Sentis, 1979; Messick & Sentis, 1983).

Merging these ideas from territoriality and egocentrism, when there is uncertainty about what constitutes a fair distribution of a commons resource, individuals, psychologically owning that resource, will interpret its distribution egocentrically and over mark. Furthermore, if they anticipate that others will not be as cooperative and fair as they perceive themselves to be (Messick et al., 1985), then individuals may over defend a territory through anticipatory defenses. Thus,

Proposition 5 (P5). *Egocentric views of fairness increase control-oriented marking territorial behavior.*

Proposition 6 (P6). *Reactive egoism increases anticipatory defending territorial behaviors.*

Territorial Behavior and Anticommons Emergence

We maintain that as control-oriented marking and anticipatory defending behaviors increase, there is a higher likelihood that a commons resource transforms into an anticommons resource. Research about property rights (Alchian, 1977) and territoriality (Brown et al., 2005) suggests that individuals can perceive to own the same (or overlapping) portions of a resource. Alchian (1977) observed that property rights can be partitioned: Individuals can hold rights over different aspects of the same resource. Schlager and Ostrom (1992) observed that property rights may be "bundled" such that one individual can access a commons resource but may not have the right to use (withdraw from) that resource, while another can have withdrawal rights but not the ability to alter how others use the resource, and yet another individual may have authority to transfer their rights to another but cannot access or withdraw from the resource.

The more individuals mark and defend portions of a commons resource, the more challenging it becomes for others to access and use the resource. This marking and defending can be exacerbated because individuals perceive they either deserve to control more of the resource or fear that others will be greedy when marking and defending a territory. As a result, access to the commons resource is limited, increasing the likelihood of it becoming an anticommons resource. Thus,

Proposition 7 (P7). *As control-oriented marking and anticipatory defending behavior increases, the likelihood of an anticommons resource emerging increases.*

The Moderating Effect of Carrying Capacity

The carrying capacity of the commons resource may moderate the impact control-oriented marking and anticipatory defending behaviors have on the likelihood of anticommons resource emergence. When it is scarce, a commons resource can be used only so much before it is exhausted—exceeding its carrying capacity (Kramer, 1989; Schiff, 1995). As the commons resource reaches its carrying capacity, uncertainty over whether others will exercise self-restraint might increase (Kramer, 1989) and individuals who perceive that a commons resource is approaching its carrying capacity may aggressively attempt to secure a portion of that resource for themselves (Samuelson & Messick, 1986). If the commons resource is scarce, it may take little marking and defending portions of the commons resource before it becomes no longer useable. In contrast, where there is a bounty of a commons resource available, even individuals marking and defending what is perceived as more than their fair share will be less likely to lock up the resource. Thus,

Proposition 8 (P8). *The carrying capacity of the commons resource will moderate the relationship between territorial behavior and the emergence of an anticommons resource such that the likelihood of territorial behavior leading to anticommons resource emergence will be greater when the carrying capacity of the commons resource is low, compared to when it is high.*

General Discussion

We integrate research about property rights, territoriality, social dilemmas, and self-serving biases to posit how anticommons resource emerges from commons resources from the bottom up. In organizational settings, individuals may come to psychologically own overlapping portions of a commons

resource, mark and defend those overlapping portions, and transform a commons resource into an anticommons resource. In doing so, the resource ceases being vulnerable to overuse and becomes subject to underuse. This is because multiple individuals have means and motive to restrict each other from using the resource. We proposed that resource and group complexity can create an environment in which commons resource governance generates an anticommons problem. Complexity makes individuals susceptible to the self-serving biases of egocentric views of fairness and reactive egoism, resulting in marking and defending a commons resource to the point of it becoming an anticommons resource. This theoretical model provides groundwork for future empirical research on psychological ownership in the context of commons and anticommons resource dilemmas.

Theoretical, Empirical, and Practical Implications

A bottom-up approach to anticommons emergence pushes our understanding of ownership in several ways. First, consider the social dilemma and privatization process that typically mitigates a tragedy of the commons. Paradoxically, individuals, seeking to manage a shared resource and avoid overuse (an inefficient outcome), may take action leading to its underuse—still an inefficient outcome (Mukhija, 2005). This social dilemma has particular importance to managers who encourage subordinates to psychologically own their work, in hope of increasing work morale, output, and accountability (Vandewalle, Van Dyne, & Kostova, 1995). If the perceived-to-be owned resource is shared, then what is rational for the individual may conflict with what is rational (and efficient) for the organization.

Theorizing how territorial behaviors lead to an emergence of anticommons resources highlights the importance of interdependence when multiple individuals perceive they own (portions of) the same resource. The current model focuses on how one individual's territorial behavior not only impacts how they use a commons resource, but also how others use it. In discussing the consequences of territoriality in organizations, research on territoriality primarily focuses on individual outcomes, such as individual commitment, desire to be isolated from others, and preoccupation (Brown et al., 2005; Brown & Robinson, 2011). The current research complements Brown et al.'s (2005: 587) theorizing by looking closer into what can happen when "territorial behavior . . . [does not] create socially agreed upon territories." That is, the social interdependence experienced among users of a commons resource may create an environment where one's territorial behavior results in a resource being underutilized by others.

Interdependence also plays a role in how an individual perceives another's territorial behavior. Tenbrunsel and Northcraft's (2010) research on perceptions in social dilemmas suggests that individuals may intentionally mark and defend a territory to be a wise steward over what is (perceived as) theirs while unintentionally coming across to others as noncooperative. The result of this unintentional cooperation is encouragement of others to also be noncooperative when using the commons. Ironically, while we tend to consider privatization as a means of independence, our model demonstrates how privatization can increase interdependence (McWilliams, 2011). However, whether those unintentionally creating the anticommons are aware of their interdependence is a different question. Individuals do sacrifice personal welfare to avoid a social burden when they believe that they are (even partially) the cause of the crisis compared to when they are not (Kahneman et al., 1993). Thus, future research may benefit from examining whether the emergence of the anticommons can be averted as a function of whether (or not) people generating it are aware of their shared fate.

Furthermore, it is important to consider the social processes influencing property rights formation (Eggertsson, 2003). We discuss how "psychological property rights" (van den Bergh, 2007) can emerge over a commons resource, and because of self-serving biases such as reactive egoism and egocentric views of fairness, these psychological, de facto property rights regimes can turn a commons resource into an anticommons resource. Whereas previous property rights research focuses on how incentives lead to property right formation (Alchian, 1977; Demsetz, 1967; Hart & Moore, 1990), this article brings the role of perceptions into the five decade-long discussion of property rights scholarship. This refocus on social

perceptions may encourage property rights theorists to consider how incentives to psychologically privatize, not only alter the payoffs of a decision, but also how the decision maker's behavior is perceived and responded to by other decision makers. Individuals may be merely responding rationally to incentives to mark and defend portions of a commons resource that they perceive as theirs, while being perceived by others as being irrational and inappropriate.

The current article also complements existing social dilemma research. Previous work assumes the only action available to individuals using commons resources is taking behavior (for reviews see, Dawes, 1980; Kopelman et al., 2002). We extend this thinking by discussing how territorial behavior over a commons resource can keep others from take behavior. However, doing so creates a second-order social dilemma. To avoid the tragedy of the commons, it is in everyone's self-interest to mark and defend portions of the commons resource that they psychologically own. However, if too much of the resource is psychologically privatized, the outcome is in no one's interests: A tragedy of the anticommons emerges. Thus, whereas previous research maintains that perceiving to be an owner over portions of a commons resource improves the collective's well-being (Cass & Edney, 1978; van Dijk & Wilke, 1997), we suggest that perceived ownership may backfire when too many users are armed with the ability to restrict (or at least impede) access.

Finally, we extend the burgeoning work on the anticommons by proposing how the "psychological biases" discussed by Heller (1998, 2008) lead to anticommons emergence. Whereas the literature describes a top-down process or assumes the anticommons' existence ex ante (Buchanan & Yoon, 2000; van Hiel, Vanneste, & de Cremer, 2008; Ziedonis, 2004), the current article shifts focus to how this troubling inefficient resource underuse may come into being. A bottom-up approach pushes the discussion of anticommons—predominantly among legal scholars—from market situations where formal authorities (e.g., the state) create anticommons resources using de jure property rights regimes, to organizational situations where individuals use de facto property regimes to create an anticommons resource out of a commons resource. It shifts the focus from institutional solutions to behavioral cooperation. Considering future negotiation and conflict management research directions on intergroup conflict (Halevy & Cohen, 2019), cultural norms (Ramirez Marin, Olekalns, & Adair, 2019), emotions (Rees & Kopelman, 2019), and hierarchy, power, and status (Bendersky & Hays, 2012; Greer & Bendersky, 2013; Greer & Chu, 2020; Greer, Van Bunderen, & Yu, 2017), as well as resource characteristics of the task, such as how ambiguity and uncertainty play a role in fairness perceptions (Blader, 2007; Smith, 1987), may help better understand the dynamics around psychological ownership and cooperation in anticommons resource dilemmas. Behavioral cooperation elicited by psychological factors pertaining to the social and task setting of commons resource dilemma (e.g., for a review see Kopelman et al., 2002) may further illuminate —whether through symmetry or asymmetry (van Hiel, et al., 2008; Vanneste, Van Hiel, Parisi, & Depoorter, 2006)—the theoretical mechanisms illustrated in our model and serve as mediating or moderating variables that impact the emergence of an anticommons; or serve as solutions to mitigate it.

In discussing how psychological factors enhance the likelihood of anticommons emergence, our approach suggests an alternative for how to navigate anticommons resource dilemmas. Heller's work (2008), as well as recent experimental economic articles on the anticommons (DeSantis, McCarter, & Winn, 2018; Winn & McCarter, 2018), would advocate altering the incentives and structure of property rights through either legislation or markets. Our conceptual model, in contrast, suggests that shared psychological logics about appropriate commons management (Arora et al., 2012; Kopelman, 2009; Kopelman et al., 2019; March, 1994; Messick, 1999; Weber et al., 2004) could elicit cooperation and mitigate the emergence of an anticommons resource. This behavioral psychology perspective may be particularly attractive for organizations that value decentralized control and a meditational approach to resolving employee disputes (Feldman & Khademian, 2000) and may have consequences for psychological ownership dynamics in teams (Gray, Knight, & Baer, 2019). The ongoing pursuit of cooperation in social dilemmas in organizational settings aligns with a positive lens to organizational scholarship (Spreitzer, Myers, Kopelman, & Mayer, 2019) that enables transcending beyond a tit-for-tat approach to

transforming conflict into peaceful harmony, à la Anatol Rapoport (for a review, see Kopelman, 2019). We hope the conceptual model presented in this article—a conceptual model Matthew McCarter innovatively explored and passionately finessed—spurs empirical research that illuminates the relationship between resource dilemmas at both ends of the property spectrum (tragedy of the commons and anticommons), considering psychological ownership alongside the interpersonal and task dynamics at play. Empirical research inspired by this conceptual model will help understand whether reactive egoism that creates territoriality can exist with or without a need for psychological ownership (real or perceived) and what individual- or group-level behavioral solutions might mitigate the emergence of an anticommons.

Conclusion

An English proverb states that "too many cooks can spoil the broth," implying that too many people involved in the same task reduces the chances of that task being achieved (Ammer, 2006: 446). We theorized how too many psychological claims to territory can spoil a commons resource by transforming it into an anticommons resource. Privatizing a commons resource can be an effective way to navigate a tragedy of overuse, but only when either there is a "leviathan" to dictate and enforce rules (Hobbes, 1907 [1651]) or an agreed upon set of culturally informed appropriate logics (Kopelman, 2009; March, 1994; Weber et al., 2004). Absent the former, individuals may seek to manage a commons resource through territorial behavior. Absent the latter, individual territorial behavior in organizational settings may lead to the emergence of an outcome unfortunate for everyone: a tragedy of the anticommons.

May this article serve as an *amuse bouche* that inspires researchers to empirically test the proposed behavioral model of anticommons emergence; for in the domain of scholarship, it takes many cooks to theoretically develop and test ideas that enable leadership and benefit society.

References

Acheson, J. M. (1975). The lobster fiefs: Economic and ecological effects of territoriality in Maine lobster industry. *Human Ecology*, *3*(3), 183–207. https://doi.org/10.1007/BF01531640

Alchian, A. A. (1977). Some economics of property rights. In A. A. Alchian (Ed.), *Economic forces at work* (pp. 127–149). Indianapolis, IN: Liberty Press. https://www.jstor.org/stable/43206327

Allison, S. T., & Messick, D. M. (1990). Social decision heuristics in the use of shared resources. *Journal of Behavioral Decision Making*, *3*(3), 195–204. https://doi.org/10.1002/bdm.3960030304

Ammer, C. (2006). *The facts on file dictionary of clichés*. New York, NY: Facts on File Inc.

Arora, P., Peterson, N. D., Krantz, D. H., Hardisty, D. J., & Reddy, K. S. (2012). To cooperate or not to cooperate: Using new methodologies and frameworks to understand how affiliation influences cooperation in the present and future. *Journal of Economic Psychology*, *33*, 842–853. https://doi.org/10.1016/j.joep.2012.02.006

Babcock, L., & Loewenstein, G. F. (1997). Explaining bargaining impasse: The role of self-serving biases. *Journal of Economic Perspectives*, *11*(1), 109–126. https://doi.org/10.1257/jep.11.1.109

Bazerman, M. H., Curhan, J. R., Moore, D. A., & Valley, K. L. (2000). Negotiation. *Annual Review of Psychology*, *51*, 279–314. https://doi.org/10.1146/annurev.psych.51.1.279

Bendersky, C., & Hays, N. A. (2012). Status conflict in groups. *Organization Science*, *23*, 323–340. https://doi.org/10.1287/orsc.1110.0734

Blader, S. L. (2007). What determines people's fairness judgments? Identification and outcomes influence procedural justice evaluations under uncertainty. *Journal of Experimental Social Psychology*, *43*, 986–994. https://doi.org/10.1016/j.jesp.2006.10.022

Bornstein, G., & Ben-Yossef, M. (1994). Cooperation in intergroup and single-group social dilemmas. *Journal of Experimental Social Psychology*, *30*(1), 52–67. https://doi.org/10.1006/jesp.1994.1003

Brewer, M. B., & Silver, M. (1978). Ingroup bias as a function of task characteristics. *European Journal of Social Psychology*, *8*, 393–400. https://doi.org/10.1002/ejsp.2420080312

Brown, G., Lawrence, T. B., & Robinson, S. L. (2005). Territoriality in organizations. *Academy of Management Review*, *30*, 577–594. https://doi.org/10.2307/20159145

Brown, G., & Robinson, S. L. (2011). Reactions to territorial infringement. *Organization Science*, *22*(1), 210–224. https://doi.org/10.1287/orsc.1090.0507

Buchanan, J. M., & Yoon, Y. J. (2000). Symmetric tragedies: Commons and anticommons. *Journal of Law & Economics*, *43*(1), 1–13. https://doi.org/10.1086/467445

Budescu, D. V., Rapoport, A., & Suleiman, R. (1990). Resource dilemmas with environmental uncertainty and asymmetric players. *European Journal of Social Psychology*, *20*, 475–487. https://doi.org/10.1002/ejsp.2420200603

Cass, R. C., & Edney, J. J. (1978). The commons dilemma: A simulation testing the effects of resource visibility and territorial division. *Human Ecology*, *6*, 371–386. https://doi.org/10.1007/BF00889415

Dawes, R. M. (1980). Social dilemmas. *Annual Review of Psychology*, *31*, 169–193. https://doi.org/10.1146/annurev.ps.31.020180.001125

Dawes, R. M., & Messick, D. M. (2000). Social dilemmas. *International Journal of Psychology*, *35*(2), 111–116. https://doi.org/10.1080/002075900399402

de Kwaadsteniet, E. W., van Dijk, E., Wit, A., & de Cremer, D. (2006). Social dilemmas as strong versus weak situations: Social value orientations and tacit coordination under resource size uncertainty. *Journal of Experimental Social Psychology*, *42*, 509–516. https://doi.org/10.1016/j.jesp.2005.06.004

de Kwaadsteniet, E. W., van Dijk, E., Wit, A., de Cremer, D., & de Rooij, M. (2007). Justifying decisions in social dilemmas: Justification pressures and tacit coordination under environmental uncertainty. *Personality & Social Psychology Bulletin*, *33*, 1648–1660. https://doi.org/10.1177/0146167207307490

Demsetz, H. (1967). Toward a theory of property rights. *American Economic Review*, *57*, 347–359. https://www.jstor.org/stable/1821637

DeSantis, M., McCarter, M. W., & Winn, A. (2018). Land assembly with taxes, not takings. *Applied Economics Letters*, *26*, 604–607. https://doi.org/10.1080/13504851.2018.1488047

Eggertsson, T. (2003). Open access versus commons property. In T. L. Anderson & F. S. McChesney (Eds.), *Property rights: Cooperation, conflict, and law* (pp. 73–89). Princeton, NJ: Princeton University Press.

Epley, N., Caruso, E., & Bazerman, M. H. (2006). When perspective taking Increases taking: Reactive egoism in social interaction. *Journal of Personality & Social Psychology*, *91*, 872–889. https://doi.org/10.1037/0022-3514.91.5.872

Feeny, D., Berkes, F., McCay, B. J., & Acheson, J. M. (1990). The tragedy of the commons: Twenty-two years later. *Human Ecology*, *18*(1), 1–19. https://doi.org/10.1007/BF00889070

Feldman, M. S., & Khademian, A. M. (2000). Managing for inclusion: Balancing control and participation. *International Public Management Journal*, *3*(2), 149–167. https://doi.org/10.1016/S1096-7494(01)00035-6

Gray, S. M., Knight, A. P., & Baer, M. (2019). On the emergence of collective psychological ownership in new creative teams. *Organization Science*, https://doi.org/10.1287/orsc.2019.1307

Greer, L., & Bendersky, C. (2013). Power and status in conflict and negotiation research: Introduction to the special issue. *Negotiation and Conflict Management Research*, *6*(4), 239–252. https://doi.org/10.1111/ncmr.12021

Greer, L. L., & Chu, C. (2020). The contradictory effects of power, status, and hierarchy on group versus individual outcomes. *Current Opinions in Psychology*, *33*, 162–166. https://doi.org/10.1016/j.copsyc.2019.07.040

Greer, L. L., Van Bunderen, L., & Yu, S. (2017). The dysfunctions of power in teams: A review and emergent conflict perspective. *Research in Organizational Behavior*, *37*, 103–124. https://doi.org/10.1016/j.riob.2017.10.005

Halevy, N., & Cohen, T. R. (2019). Intergroup conflict 2020. *Negotiation and Conflict Management Research*, *12*(2), 161–173. https://doi.org/10.1111/ncmr.12148

Hardin, G. (1968). The tragedy of the commons. *Science*, *162*, 1243–1248. https://doi.org/10.1126/science.162.3859.1243

Hart, O., & Moore, J. (1990). Property rights and the nature of the firm. *Journal of Political Economy*, *98*, 1119–1158. https://doi.org/10.1086/261729

Heller, M. A. (1998). The tragedy of the anticommons: Property in the transition from Marx to markets. *Harvard Law Review*, *111*, 621–688. https://doi.org/10.2307/1342203

Heller, M. A. (1999). The boundaries of private property. *Yale Law Journal*, *108*, 1163–1223. https://www.jstor.org/stable/797326

Heller, M. A. (2008). *The gridlock economy: How too much ownership wrecks markets, stops innovation, and costs lives*. New York, NY: Basic Books.

Heller, M. A. (2011). The anticommons lexicon. In K. Ayotte & H. E. Smith (Eds.), *The research handbook on the economics of property law* (pp. 57–74). Cheltenham, UK: Edward Elgar Publishing.

Heller, M. A., & Eisenberg, R. S. (1998). Can patents deter innovation? The anticommons in biomedical research. *Science*, *280*, 698–701. https://doi.org/10.1126/science.280.5364.698

Hobbes, T. (1907) [1651]. *Leviathan.* New York, NY: Routledge and Sons.

Ingram, P., & Inman, C. (1996). Institutions, intergroup competition, and the evolution of hotel populations around Niagara Falls. *Administrative Science Quarterly*, *41*, 629–658. https://doi.org/10.2307/2393870

Kahan, J. P. (1974). Rationality, the prisoner's dilemma, and population. *Journal of Social Issues*, *30*(4), 189–210. https://doi.org/10.1111/j.1540-4560.1974.tb01760.x

Kahneman, D., Ritov, I., Jacowitz, K., & Grant, P. (1993). Stated willingness to pay for public goods: A psychological perspective. *Psychological Science*, *4*, 310–315. https://doi.org/10.1111/j.1467-9280.1993.tb00570.x

Kollock, P. (1998). Social dilemmas: The anatomy of cooperation. *Annual Review of Sociology*, *24*, 183–214. https://doi.org/10.1146/annurev.soc.24.1.183

Kopelman, S. (1999). *The tragedy of the anticommons: Implications for research on social dilemmas*. The 8th International Conference on Social Dilemmas (ICSD), Israel.

Kopelman, S. (2009). The effect of culture and power on cooperation in commons dilemmas: Implications for global resource management. *Organization Behavior & Human Decision Processes*, *108*(2), 153–163. https://doi.org/10.1016/j.obhdp.2008.06.004

Kopelman, S. (2019). tit-for-tat and beyond: The legendary work of Anatol Rapoport. *Negotiation and Conflict Management Research*. https://doi.org/10.1111/ncmr.12172

Kopelman, S., Hardin, A. E., Myers, C. G., & Tost, L. P. (2019). Cooperation in multicultural negotiations: How the cultures of people with low and high power interact. *Journal of Applied Psychology*, *101*, 721–730. https://doi.org/10.1037/apl0000065

Kopelman, S., Weber, M. C., & Messick, D. M. (2002). Factors influencing cooperation in commons dilemmas: A review of experimental psychological research. In E. Ostrom, T. Dietz, N. Dolsak, P. C. Stern, S. Stovich, & E. U. Weber (Eds.), *Drama of the commons* (pp. 113–156). Washington, DC: National Academy Press. https://doi.org/10.17226/10287

Kramer, R. M. (1989). When the going gets tough: The effects of resource scarcity on group conflict and cooperation. In E. Lawler & B. Markovsky (Eds.), *Advances in group processes* (Vol. *7*, pp. 151–177). Greenwich, CT: JAI Press.

Kramer, R. M. (1991). Intergroup relations and organizational dilemmas: The role of categorization processes. *Research in Organizational Behavior*, *13*, 191–228.

Kramer, R. M., & Brewer, M. B. (1984). Effects of group identity on resource use in a simulated commons dilemma. *Journal of Personality & Social Psychology*, *46*, 1044–1057. https://doi.org/10.1037/0022-3514.46.5.1044

Krueger, J. I., & Acevedo, M. (2007). Perceptions of self and other in the prisoner's dilemma: Outcome bias and evidential reasoning. *American Journal of Psychology*, *120*, 593–618. https://psycnet.apa.org/record/2008-00886-004

Kumar, K., & van Dissel, H. G. (1996). Sustainable collaboration: Managing conflict and cooperation in interorganizational systems. *MIS Quarterly*, *20*(3), 279–300. https://doi.org/10.2307/249657

March, J. G. (1994). *A primer of decision making: How decisions happen*. New York, NY: Free Press.

Marinoff, L. (1999). The tragedy of the coffeehouse: Costly riding and how to avert it. *Journal of Conflict Resolution*, *43*, 434–450. https://www.jstor.org/stable/174611

Maurer, S. M. (2006). Inside the anticommons: Academic scientists' struggle to build a commercially self-supporting human mutations database, 1999–2001. *Research Policy*, *35*, 839–853. https://doi.org/10.1016/j.respol.2006.04.008

McCarter, M. W., Rockmann, K. W., & Northcraft, G. B. (2010). Is it even worth it? The effect of loss prospects in the outcome distribution of a public goods dilemma. *Organizational Behavior & Human Decision Processes*, *111* (1), 1–12. https://doi.org/10.1016/j.obhdp.2009.06.003

McWilliams, W. C. (2011). *The democratic soul*. Lexington, KY: University Press of Kentucky.

Messick, D. M. (1993). Equality as a decision heuristic. In B. A. Mellers & J. Baron (Eds.), *Psychological perspectives on justice: Theory and applications* (pp. 11–31). Cambridge, UK: Cambridge University Press.

Messick, D. M. (1999). Alternative logics for decision making in social settings. *Journal of Economic Behavior & Organization*, *39*(1), 11–28. https://doi.org/10.1016/S0167-2681(99)00023-2

Messick, D. M., Bloom, S., Boldizar, J. P., & Samuelson, C. D. (1985). Why we are fairer than others. *Journal of Experimental Social Psychology*, *21*, 480–500. https://doi.org/10.1016/0022-1031(85)90031-9

Messick, D. M., & Brewer, M. (1983). Solving social dilemmas. In L. Wheeler & P. Shaver (Eds.), *Review of personality and social psychology* (Vol. *4*, pp. 11–44). Beverly Hills, CA: Sage Publications.

Messick, D. M., & Rutte, C. (1992). The provision of public goods by experts: The Groningen study. In W. B. G. Liebrand, D. M. Messick, & H. Wilke (Eds.), *Social dilemmas: Theoretical issues and research findings* (pp. 101–107). London, UK: Pergamon Press.

Messick, D. M., & Sentis, K. P. (1979). Fairness and preference. *Journal of Experimental Social Psychology*, *15*, 418–434. https://doi.org/10.1016/0022-1031(79)90047-7

Messick, D. M., & Sentis, K. P. (1983). Fairness, preference, and fairness biases. In D. M. Messick & K. S. Cook (Eds.), *Equity theory: Psychological and sociological perspectives* (pp. 61–64). New York, NY: Praeger.

Michelman, F. I. (1967). Property, utility and fairness: Comments on the ethical foundations of just compensation law. *Harvard Law Review*, *80*, 1165–1258.

Mukhija, V. (2005). Collective action and property rights: A planner's critical look at the dogma of private property. *International Journal of Urban & Regional Research*, *29*, 972–983. https://doi.org/10.1111/j.1468-2427.2005.00632.x

Murnighan, J. K., & King, T. R. (1992). Using leverage in asymmetric dilemmas: Alternation and cooperation in complex mixed motive conflict. In W. Liebrand, D. Messick, & H. Wilke (Eds.), *A social psychological approach to social dilemmas* (pp. 163–182). Oxford, UK: Pergamon Press.

North, D. C. (1990). *Institutions: Institutional change and economic performance*. New York, NY: Cambridge University Press.

Northcraft, G. B., Neale, M. A., Tenbrunsel, A., & Thomas, M. (1996). Benefits and burdens: Does it really matter what we allocate? *Social Justice Research*, *9*(1), 27–45. https://doi.org/10.1007/BF02197655

Ostrom, E. (1990). *Governing the commons*. New York, NY: Cambridge University Press.

Ostrom, E., Dietz, T., Dolsak, N., Stern, P. C., Stovich, S., & Weber, E. U. (2002). *Drama of the commons*. Washington, DC: National Academy Press. https://doi.org/10.17226/10287

Paese, P. W., & Yonker, R. D. (2001). Toward a better understanding of egocentric fairness judgments in negotiation. *International Journal of Conflict Management*, *12*(2), 114–131. https://doi.org/10.1108/eb022852

Parisi, F., Schulz, N., & Depoorter, B. (2004). Simultaneous and sequential anticommons. *European Journal of Law and Economics*, *17*(2), 175–190. https://doi.org/10.1023/B:EJLE.0000014575.00312.15

Parisi, F., Schulz, N., & Depoorter, B. (2005). Duality in property: Commons and anticommons. *International Review of Law and Economics*, *25*, 594–613. https://doi.org/10.1016/j.irle.2005.12.003

Pierce, J., Kostova, T., & Dirks, K. (2001). Toward a theory of psychological ownership in organizations. *Academy of Management Review*, *26*(2), 298–310. https://doi.org/10.5465/amr.2001.4378028

Ramirez Marin, J., Olekalns, M., & Adair, W. (2019). Normatively speaking: Do cultural norms influence negotiation, conflict management, and communication? *Negotiation and Conflict Management Research*, *12*(2), 146–160. https://doi.org/10.1111/ncmr.12155

Rees, L., & Kopelman, S. (2019). Logics and logistics for future research: Appropriately interpreting the emotional landscape of multicultural negotiation. *Negotiation and Conflict Management Research*, *12*(2), 131–145. https://doi.org/10.1111/ncmr.12152

Rockmann, K. W., & Northcraft, G. B. (2008). To be or not to be trusted: The influence of media richness on defection and deception. *Organizational Behavior & Human Decision Processes*, *107*(2), 106–122. https://doi.org/10.1016/j.obhdp.2008.02.002

Samuelson, C. D., & Messick, D. M. (1986). Alternative structural solutions to resource dilemmas. *Organizational Behavior & Human Decision Processes*, *37*(1), 139–155. https://doi.org/10.1016/0749-5978(86)90049-X

Schiff, M. (1995). Uncertain property rights and the Coase theorem. *Rationality & Society*, *7*, 321–327. https://doi.org/10.1177/1043463195007003005

Schlager, E., & Ostrom, E. (1992). Property-rights regimes and natural resources: A conceptual analysis. *Land Economics*, *68*(3), 249–262. https://doi.org/10.2307/3146375

Smith, R. T. (1981). Resolving the tragedy of the commons by creating private property rights in wildlife. *CATO Journal*, *1*, 439–468. Retrieved from https://www.cato.org/cato-journal/fall-1981

Smith, V. K. (1987). Nonuse values in benefit cost analysis. *Southern Economic Journal*, *54*(1), 19–26. https://doi.org/10.2307/1058800

Spreitzer, G., Myers, C. G., Kopelman, S., & Mayer, D. (2019 March 1; online first). The conceptual and empirical value of a positive lens: An invitation to organizational scholars to develop novel research questions. *Academy of Management Perspectives*. https://doi.org/10.5465/amp.2015.0056

Taylor, M., & Ward, H. (1982). Chickens, whales, and lumpy goods: Alternative models of public-goods provision. *Political Studies*, *30*, 350–370. https://doi.org/10.1111/j.1467-9248.1982.tb00545.x

Tenbrunsel, A. E., & Northcraft, G. B. (2010). In the eye of the beholder: Payoff structures and decision frames in social dilemmas. In R. Kramer, A. E. Tenbrunsel & M. H. Bazerman (Eds.), *Social decision making: Social dilemmas, social values, and ethical judgments* (pp. 95–115). New York, NY: Psychology Press.

van den Bergh, J. C. J. M. (2007). Evolutionary thinking in environmental economics. *Journal of Evolutionary Economics*, *17*, 521–549. https://doi.org/10.1007/s00191-006-0054-0

van Dijk, E., & Wilke, H. (1993). Differential interests, equity, and public good provision. *Journal of Experimental Social Psychology*, *29*(1), 1–16. https://doi.org/10.1006/jesp.1993.1001

van Dijk, E., & Wilke, H. (1997). Is it mine or is it ours? Framing property rights and decision making in social dilemmas. *Organizational Behavior & Human Decision Processes*, *71*(2), 195–209. https://doi.org/10.1006/obhd.1997.2718

van Hiel, A., Vanneste, S., & de Cremer, D. (2008). Why did they claim too much? The role of causal attributions in explaining level of cooperation in commons and anticommons dilemmas. *Journal of Applied Social Psychology*, *38*(1), 173–197. https://doi.org/10.1111/j.1559-1816.2008.00301.x

Van Lange, P. A. M., Joireman, J., Parks, C. D., & van Dijk, E. (2013). The psychology of social dielmmas: A review. *Organizational Behavior and Human Decision Processes*, *120*(2), 125–141. https://doi.org/10.1016/j.obhdp.2012.11.003

Vandewalle, D., Van Dyne, L., & Kostova, T. (1995). Psychological ownership: An empirical examination of its consequences. *Group & Organization Management*, *20*(2), 210–226. https://doi.org/10.1177/1059601195202008

Vanneste, S., Van Hiel, A., Parisi, F., & Depoorter, B. (2006). From "tragedy" to "disaster": Welfare of commons and anticommons dilemmas. *International Review of Law and Economics*, *26*(1), 104–122. https://doi-org.proxy.lib.umich.edu/10.1016/j.irle.2006.05.008

Wade-Benzoni, K. A., Tenbrunsel, A. E., & Bazerman, M. H. (1996). Egocentric interpretations of fairness in asymmetric, environmental social dilemmas: Explaining harvesting behavior and the role of communication. *Organizational Behavior & Human Decision Processes*, *67*(2), 111–126. https://doi.org/10.1006/obhd.1996.0068

Weber, J. M., Kopelman, S., & Messick, D. M. (2004). A conceptual review of decision making in social dilemmas: Applying a logic of appropriateness. *Personality & Social Psychology Review*, *8*(3), 281–307. https://doi.org/10.1207/s15327957pspr0803_4

Williamson, O. E. (1979). Transaction-cost economics: The governance of contractual relations. *Journal of Law & Economics*, *22*(2), 233–261. https://doi.org/10.1086/466942

Winn, A., & McCarter, M. W. (2018). Who's holding out? An experimental study of the benefits and burdens of eminent domain. *Journal of Urban Economics*, *105*(3), 176–185. https://doi.org/10.1016/j.jue.2017.10.001

Zahra, S. A., Ireland, R. D., Gutierrez, I., & Hitt, M. A. (2000). Privatization and entrepreneurial transformation: Emerging issues and a future research agenda. *Academy of Management Review*, *25*, 509–524. https://doi.org/10.5465/amr.2000.3363324

Ziedonis, R. H. (2004). Don't fence me in: Fragmented markets for technology and the patent acquisition strategies of firms. *Management Science*, *50*, 804–820. https://doi.org/10.1287/mnsc.1040.0208

Matthew W. McCarter was an Associate Professor of Management at The University of Texas at San Antonio and a research affiliate at the Economic Science Institute at Chapman University. He received a Ph.D. from the University of Illinois- Champaign Urbana in 2009. His primary research interest is managerial decision making with a particular interest in social dilemmas and collaboration problems in organizational settings. Matthew McCarter passed away in July of 2019.

Shirli Kopelman is a Professor of Management and Organizations at the University of Michigan's Ross School of Business. Kopelman was President of the International Association for Conflict Management in 2017 and also served as Faculty Director of Practice (2015) and of Research (2017) at the Center for Positive Organizations at the University of Michigan. Kopelman is author of Negotiating Genuinely: Being Yourself in Business published in 2014 by Stanford University Press. Kopelman's research focuses on mindfully navigating emotions in negotiation and fostering cooperation in social dilemmas and multicultural group settings.

Thomas A. Turk serves as the Dean of Chapman University's Argyros School of Business and Economics and is a Professor of Strategic Management. Professor Turk's research has examined the role of executive incentives in strategic decision making and firm performance. Professor Turk's current research and consulting assists firms in reducing bureaucracy and increasing their capacity to take entrepreneurial initiative.

Candace E. Ybarra serves as Associate Dean of Chapman University's Argyros School of Business and Economics and is an Associate Professor of Strategic Management. Professor Ybarra's research focuses on the use of strategic alliances to gain competitive advantages and improve performance. Specifically she examines factors that promote trust, flexibility and knowledge creation between partners.

negotiation and conflict management research

INTERNATIONAL ASSOCIATION FOR CONFLICT MANAGEMENT

Negotiation and Conflict Management Research

Using Emotions to Frame Issues and Identities in Conflict: Farmer Movements on Social Media

Tim M. Stevens,[1] Noelle Aarts[2] and Art Dewulf[3]

1 Strategic Communication, Wageningen University and Research Centre, Wageningen, The Netherlands
2 ISIS, Radboud University Nijmegen, Nijmegen, The Netherlands
3 Public Administration and Policy, Wageningen University and Research Centre, Wageningen, The Netherlands

Keywords
framing, conflict, identity, emotion, social media, animal welfare, animal husbandry.

Correspondence
Tim M. Stevens, Strategic Communication, Wageningen University and Research Centre, P.O. Box 8130, 6700 EW Wageningen, The Netherlands; e-mail: tim.stevens@wur.nl.

doi: 10.34891/9mmd – q341

Abstract

Polarization and group formation processes on social media networks have received ample academic attention, but few studies have looked into the discursive interactions on social media through which intergroup conflicts develop. In this comparative case study, we analyzed two social media conflicts between farmers and animal right advocates to understand how conflicts establish, escalate, and return dormant through issue and identity framing and the discursive use of emotions. The results show that the two groups used the same set of frames throughout the three phases. We identify this as a symmetric conflict framing repertoire. The groups both use a dominant moral frame (animal welfare is of absolute value), but express distinct views on policy solutions. This triggers a contestation of credibility (who knows best and who cares most for animals) in which the two groups use the same set of issue and identity frames to directly oppose each other. The binary opposition is initially established through issue framing but escalates into an identity conflict that involves group labeling and blaming. The discursive use of emotion reinforces this escalation in two ways. First, it reinforces a vicious cycle in the contestation of credibility: While emotions are implicitly used to frame oneself as caring and trustworthy, emotion is explicitly used to frame the other party as deceptive and irrational. Second, disputants use collective emotions as a response to the other group's offensive actions (blaming) and as a justification of one's own collective actions. We discuss how this conflict differs from previously studied conflicts to provide plausible explanations for these findings.

Introduction

Research has extensively investigated the role of social media networks in group formation and polarization. Social media users tend to interact with like-minded people through which group formation takes shape (Bennett & Segerberg, 2011), but social media platforms also provide a space for people from different backgrounds to encounter one another (Del Vicario et al., 2016). In cases of contentious political

[Correction added on 20 February 2020, after first online publication: Two references and its corresponding citations have been added.]

issues, such encounters can lead to intergroup conflict: an antagonistic pattern of interaction between online communities (Halevy & Cohen, 2019).

Farmers and critical citizen-consumers, for example, rarely meet in everyday life. Yet these groups, which tend to have distinct views on animal livestock farming (Kendall, Lobao, & Sharp, 2006; Laine & Vinnari, 2017; Owen, Howard, & Waldron, 2000; Te Velde, Aarts, & Van Woerkum, 2002), do meet online. The online debate about intensive animal farming in The Netherlands shows frequent clashes between farmers and animal right advocates (Stevens, Aarts, Termeer, & Dewulf, 2018). Dutch animal right organizations strategically build communities and continuously trigger, convene, and curate the social media conversation about industrial animal farming and food production. Generally, they address corporations or politicians for problems related to industrial livestock farming, leading to one-directional, uniform attention in which the masses blame the few powerful institutions (Stevens, Aarts, & Dewulf, 2019). However, if animal rights activists address politicians about issues that relate to farming practices, farmers tend to collectively respond, which can trigger a conflict between these two groups. These conflicts seem to have a unique pattern of activity, framing, interaction, and media interplay reflected in three phases (Stevens et al., 2018). However, it is unclear exactly how such online conflicts establish, escalate, and return dormant through the discursive interactions between the two parties.

Conflict research has demonstrated the important role of framing (Brummans et al., 2008; Dewulf et al., 2009; Fuller & Putnam, 2018; Hurt & Welbourne, 2018; Idrissou, Paassen, Aarts, & Leeuwis, 2011; Paul, Geddes, Jones, & Donohue, 2016) and emotions (Bar-Tal, Halperin, & de Rivera, 2007; Bramsen & Poder, 2014; Guerrero & La Valley, 2006; Gross, Halperin, & Porat, 2013; Hurt & Welbourne, 2018; Iyer & Leach, 2008; Jennings, 2011; Pluut & Curşeu, 2013; Solak, Reifen Tagar, Cohen-Chen, Saguy, & Halperin, 2017) in conflict dynamics. The interactional-constructionist stance on framing has proved to be particularly relevant in understanding the dynamic of conflicts, including conflict transformation, negotiation, and mediation (Brummans et al., 2008; Dewulf et al., 2009; Fuller & Putnam, 2018; Hurt & Welbourne, 2018; Idrissou et al., 2011; Paul et al., 2016). However, this field of research tends to focus on intragroup conflicts, for example, within teams in the field of organizational communication (Coleman, 2006; Hurt & Welbourne, 2018; Pluut & Curşeu, 2013) and multiparty conflicts that generally include negotiation between multiple parties in decision-making processes, for example, in environmental governance (Brummans et al., 2008; Davis & Lewicki, 2003; Lewicki, Gray, & Elliott, 2003), and has not yet looked into online, public conflicts between two groups. Yet online, public, intergroup conflicts play a big role in today's network society and are an "understudied area that would benefit greatly from future investigations" (Halevy & Cohen, 2019).

Moreover, conflict research has shown that conflicts are fundamentally emotionally created and driven processes (Bodtker & Katz Jameson, 2001), but has barely looked at the *discursive* use of emotion in intergroup conflicts (Jones, 2001); how emotions are constructed, attended to, and understood in interaction, how they shape the course of the conversation, and how this may influence conflict dynamics. This is a significant deficit because it is the expression of emotions that ultimately influences conflict dynamics (Jones, 2001; Potter & Hepburn, 2007), and because emotional communication seems to shape online interactions (Brady, Wills, Jost, Tucker, & van Bavel, 2017). This study thus aims to investigate how intergroup conflicts establish, escalate, and return dormant through issue and identity framing and the discursive use of emotions. More specifically, we will perform a comparative case study of two online conflicts between animal right advocates and farmers to investigate (a) what issue and identity frames are being used and how these develop in interaction, and (b) how emotions are used discursively to frame issues and identities and how this shapes the interaction and the course of the conversation.

Theoretical Framework

Conflicting opinions or interests are prerequisites for conflict, but do not necessarily result in conflict. In a conflict, disputants consider their goals to be incompatible and their actions to be directed against the

other, co-constructing a zero-sum situation ("goal incompatibility") in which the gain of one party means the loss of another. We thus conceptualize a conflict not as a state of the world or a state of mind, but a phenomenon that resides in the social interaction among disputants. This interactive process is a fundamental dynamic through which social organization takes shape; conflict is not just an encounter of extant differences (opinions, interests, values, identities), but also a process through which disputants "make differences" and shape group identities (Van Herzele, Aarts, & Casaer, 2015).

Framing has proved to be a valuable approach in understanding conflict—including conflict transformation, negotiation, and mediation (Brummans et al., 2008; Dewulf et al., 2009; Fuller & Putnam, 2018; Hurt & Welbourne, 2018; Idrissou et al., 2011; Paul et al., 2016). Framing is the discerning selective activity in interpretation and (re)presentation to make sense of reality (Dewulf et al., 2009), and frames form the lenses or filtering frameworks that provide a specific perspective on the issue at stake and the role of actors therein. The interactional-constructionist stance on framing is particularly relevant in understanding the dynamic of conflicts through changes of interactions (Dewulf et al., 2009; Putnam & Holmer, 1992). From this perspective, conflict ensues because of the way people co-construct issues, identities, and interactions.

When it comes to issue frames in conflicts, literature suggests that if disputants cast the issues in incompatible ways and fail to create an acceptable joint framing, conflict is perpetuated (Dewulf et al., 2009). In particular, differences in moral or value frames—which capture a disputant's concern about issues of right and wrong, good and bad, and moral integrity (Rogan, 2006)—can make conflicts hard to resolve or transform (Pearce & Littlejohn, 1997). Moral frames are resistant to change in part because morality tends to define identity and trigger emotional arousal (Jones, 2001).

Identity frames refer to the meanings about oneself and others, and are inherently relational in intergroup conflicts. According to social identity theory (Tajfel & Turner, 1979), intergroup conflict or "identity conflict" starts with a process of comparison between individuals in one group (the in-group) to those of another group (the out-group). Identity frames capture how individuals conceive themselves and their membership in social groups (Lewicki et al., 2003). Challenges to one's identity frame generally produce vigorous defences (Rothman, 1997; Tetlock, Kristel, Elson, Green, & Lerner, 2000) and contribute to the perpetuation of conflicts (Gray, 2004). Common frames about others take the form of stereotypes or characterization frames (Davis & Lewicki, 2003). Characterization frames often undermine the others' legitimacy, cast doubt on their motivations, or exploit their sensitivity (Elliott, & Kaufman, 1999).

Issue and identity frames generally hang together as coherent frames to make sense of the situation; situations are labeled as problems (named), their causes are discussed (blamed), and those responsible are confronted (claimed). In conflict framing research, the concept of "conflict framing repertoire" captures such coherent frame constellations. A conflict framing repertoire defines what a conflict is about and what the role is of disputants, such as the role of oneself vis-a'-vis the roles of others (Putnam & Holmer, 1992). Since the frames of disputants interact in ways that tend to reinforce their stability (Putnam & Holmer, 1992), a repertoire can become salient and even stable, which is referred to as an intractable conflict.

Although the frames in intractable conflicts tend to be resilient, conflicts are typically associated with cycles of high and low intensity (Coleman, Vallacher, Nowak, & Bue Ngoc, 2005). This forms the basic paradox of intractable conflicts: They are essentially stable despite volatility and change (Coleman et al., 2005). Conflicts can go through various phases of escalation or de-escalation (Putnam & Shoemaker, 2007) and emerge, evolve, and end (Idrissou et al., 2011). Most protracted conflicts do not begin as intractable, but become so as escalation, hostile interactions, and sentiment change the quality of the conflict (Coleman et al., 2005). This can be triggered by moral and identity differences and/or struggles for power and self-determination (Coleman et al., 2005; Kriesberg, 1993).

To understand these conflict dynamics, research has looked into discursive interactions or "communication sequences" (Paul et al., 2016). This approach can help to (a) uncover the micro-processes that escalate and de-escalate a conflict and (b) show how communication patterns develop into phases that define the rhythm and flow of conflict (Paul et al., 2016). In conflict situations, parties tend to portray

their actions as responses provoked by the other party, which involves blaming through discursive punctuation (Dewulf et al., 2009). For example, one party might construct a sequence of messages as nagging criticism in reaction to the other's withdrawal, while the other sees a different start and end point of the sequence and depicts it as defensive withdrawal in response to the other's nagging criticism. Such recriminations can contribute to escalatory conflict spirals—an infinite series of oscillating cause–effect patterns (Gunkle, Watzlawick, Beavin, & Jackson, 2006). Hence, to understand how conflicts evolve, we need to study frame interactions and specific discursive processes through which these develop. Dewulf et al. (2009) have called for integrating the discursive psychology tradition in conflict framing research for understanding how, through linguistic choices in describing situations, frames are shaped.

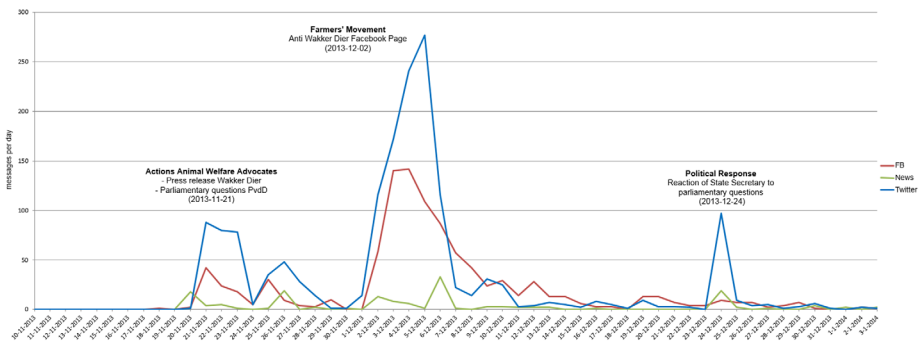
In particular, the discursive use of emotion seems to play a crucial role in conflict dynamics (Jones, 2001; Paul et al., 2016; Weatherall & Stubbe, 2015). Conflict is an emotionally created and driven process (Bodtker & Katz Jameson, 2001). As summarized by Jones (2001); conflict is emotionally defined and valenced, and emotional communication morally frames conflict and identities. In general, value differences can lead to emotional communication that drives conflicts. From a discursive perspective, emotional communication does not reflect a cognition or a state of the world, but rather a social practice with a function in social interaction. In the foundational work *Emotion Discourse*, Edwards (1999) uses a variety of empirical materials such as transcripts of relation counseling sessions and media reports to list various "rhetorical affordances" that indicate how emotion is used discursively. For example, emotions can be treated either as involuntary reactions or as under agentive control, as internal states or public displays, and as reactions or dispositions. Through these rhetorical contrasts, emotions can be used to construct the nature and cause of events, to build and undermine the sensibility of a person's actions, and thus to manage rational accountability or credibility. In group conflicts, collective emotions play a pivotal role in shaping societal responses to conflicting events, and in contributing to the evolvement of a social context that maintains the emotional climate and collective emotional orientation (Bodtker & Katz Jameson, 2001). When it comes to the use of emotions in group conflicts, it is important to consider the attribution of emotions to both individual and collective agents (as dispositional characteristics) and their actions in the process (as cause or consequence). In sum, to understand the role of emotional communication in conflict framing, this study aims to analyze the ways emotion is explicitly and implicitly employed (as discursive device) to frame issues and identities during intergroup conflicts (as discursive function). We distinguish between the explicit use of "emotion*" as discursive category and various emotion words (psychological thesaurus) that refer to or imply specific emotions as distinct discursive devices (e.g., anger, love, sadness) and analyze their function in issue framing and identity framing (differentiating self and other, as individual or group).

Methodology: A Comparative Case Study of the Calf Puller and Calf Separation Case

We performed a comparative case study of two online conflicts between animal right advocates and farmers in The Netherlands. This comparison involved the analysis and synthesis of similarities and differences for theoretical generalization; to determine the influence of framing processes and the discursive use of emotions in conflict dynamics. The social media analysis software *Coosto* was used to select cases based on typicality (Seawright & Gerring, 2008) of the conflict dynamic. The conflict dynamic in this context is a pattern of activity, framing, and media interplay that reflects three phases: (a) Animal welfare advocates problematize farming practices and address politicians to take action; (b) Farmers mobilize a counter movement using identity frames and social media venues, which generates peak news media attention; and (c) the State secretary announces a policy decision on the matter, the attention for the issue diminishes, and the conflict returns dormant (Stevens et al., 2018). From 2012 to 2018, the discussion about the calf puller for laboring the calf (in 2013) and the discussion about the separation of the calf from the cow right after birth (in 2015) best reflect this conflict dynamic. The cases are described according to the three phases in Box 1.

Box 1: Description of cases with graphs that show the three phases of the conflict based on the number of messages on Facebook, Twitter, and News media (vertical axis) per day (horizontal axis).

The Calf Puller Issue and the Anti Wakker Dier Movement (2013):



Phase 1 (11-20 till 11-30): Animal Welfare Activism and Parliamentary Questions

On 21-11-2013 Wakker Dier (animal welfare organisation) sent out an open letter to the state secretary stating that farmers massively use an illegal tool and asking her to enforce the law that prohibits the use of the calf puller. At the same time the PvdD (Political Party for Animals) announced to pose parliamentary questions. This generated a first wave of activity.

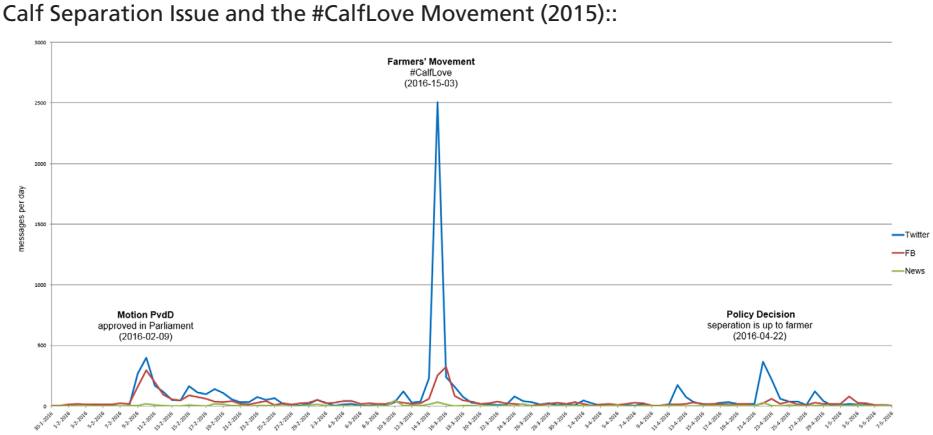
Phase 2 (12-1 till 12-23): Farmers' Movement: Anti Wakker Dier Facebook page

Activity gradually diminished, but ten days later a 23-year old farmer launched the *Anti Wakker Dier* Facebook page, which generated the second and biggest wave. Farmers stated to be 'fed up' with Wakker Dier's misleading negative portrayal of livestock farming. Within 3 days, the page was liked 10.000 times. News media messages peaked only after social media attention, which indicates that the media reported mostly about the conflict, rather than the calf puller issue.

Phase 3 (12-24 till-): Policy Decision and Aftermath

In the last phase, about a month after the press release of Wakker Dier, the state secretary declared not to enforce the law, but to allow the use of the birth tool by farmers under certain conditions. Both sides of the conflict celebrated this as a victory. The message that generated most discussion was of a communication and PR manager working for the sector, Caroline van der Plas: "The fact that Dijksma finds calf puller OK, is thanks to all farmers that told their honest and real story on (social) media". The attention for the issue diminished, but The Facebook page continued to function as an important platform for farmers to critique Wakker Dier.

The Calf Separation Issue and the #CalfLove Movement (2015)::



(**Box 1**: Continued)

Phase 1 (1-19 till 3-11): Animal Welfare Activism and Parliamentary Questions

The consequences of the increased milk production after the end of the milk quote in April 2015 was a topic of public debate, which led to an investigatory documentary "top- sport in the milk industry" (Zembla, 2015) and led to a parliamentary debate on January 27 2016 (dertig-leden debate). Both in the documentary and the debate, one of the issues brought forward was the separation of the calf and cow right after birth. The motion of the Political Party for Animals to make a plan for keeping the calf with the cow after birth was accepted by the majority of the parliament on February 9.

Phase 2 (3-11 till 4-22): Farmers' Movement: #CalfLove

In response to the accepted motion, a closed Facebook community for dairy farm womans (*'koeienboerinnen'*) started a movement with the collective action frame *#CalfLove*. According to one of the leaders: "politicians were already responding too much out of emotions, but this was the last straw that made us decide to take action" (Karin van der Toorn). To counter this movement, animal right advocates also began to use *#CalfLove*. The hashtag became number 1 trending topic on Twitter in the Netherlands, and led to peak Facebook and news media attention. The farm womans started a petition and presented this at the parliament in Den Haag on March 15.

Phase 3 (4-22 till -): Policy Decision and Aftermath

State secretary van Dam did not accept the motion to make a plan, and instead waited for a research report. He positively evaluated the fact that all parties had a common interest: the care for animals. In his reflection on the public turmoil he stated: while some react out of emotion, others emphasize the facts". He concluded that "the seperation of calves from cows is up to the farmer". The decision was celebrated by farmers, and Wakker Dier and Political Party for Animals remained silent.

Methods and Data

Data Collection

For both cases, a search query was developed to collect all messages about the issue and identities (search query in Appendix S1). Coosto was used to collect social media messages (Twitter, Facebook, Youtube, Instagram, Blogs, Fora). Twitter and Facebook were identified as the most relevant social media networks for the data analysis (most used and most inclusive platforms in terms of actors and embedded links to other media). For a comprehensive understanding of the cases, political documents and debates (source: https://zoek.officielebekendmakingen.nl) and the media messages most referred to on Facebook and Twitter were collected (source: LexisNexis).

Based on our interest in the online discursive interactions in this intergroup conflict, the data sampling method focussed on key players in the conflict and the influence of messages on the online conversation. Table 1 shows the data sampling process for each of the four datasets.

On Twitter, we selected tweets of key players (1) and tweets with high influence (2).

(**1**)The selection of key players was based on the number of messages posted, the number of reactions, their influence (which includes second-level reactions to posts of the account), and the description of the account (e.g., important actors such as the initiators of the farmer movements were included).
(**2**)The influence of a message is a measure of the amount of discussion a message triggers, which includes first-level reactions and second-level reactions.

On Facebook, we considered key pages (amount of posts and comments on a page), key accounts (based on number messages (including both posts and comments), the number of received reactions), and the discussion length of posts. In order to account for the differences between the cases, we used different selection schemes for each case in order to collect relevant data.

Table 1
Data sampling process for each of the four datasets

	Twitter	Facebook
Calf Puller Case	Messages in data set: 1682 Sample: 221 (13%) • Messages with influence >10: 104 • Key accounts: 18 Phase 1: 48 tweets Phase 2: 158 tweets Phase 3: 15 tweets	Messages in data set: 1397 Sample: 258 (98 posts/160 comments) = 18% 2 key pages: Wakker Dier + Anti Wakker Dier Phase 1: 73 (5 posts/68 comments) Phase 2: 150 (69 posts/81 comments) Phase 3: 35 (24 posts/11 comments)
Calf Separation Case	Messages in data set: 8032 Sample: 322 (4%) • Messages with influence >30: 208 • Key accounts: 12 Phase 1: 89 tweets Phase 2: 171 tweets Phase 3: 62 tweets	Messages data set: 4279 (1331 posts, 2948 comments) Sample: 134 (32 posts, 102 comments) = 3.1% • Key posts: 32 • Comments on key posts: 881 • Comments of key players, on key posts: 102 Phase 1: 42 (14 posts/28 comments) Phase 2: 58 (9 posts/49 comments) Phase 3: 34 (9 posts/25 comments)

(1) Calf Puller case: We included all posts of the two key players (Wakker Dier and Anti Wakker Dier) and then included all comments to the 5–7 most relevant posts in each of the three phases based on discussion length and diversity.
(2) Calf Separation case: For each of the three phases, we selected 9 to 14 posts with more than 20 comments on diverse key Facebook pages (news pages, farmer pages and animal right advocate pages) and then also included the comments of key players to these posts.

Data Analysis

The selected Twitter and Facebook messages do not form a single conversation with a fixed number of interlocutors and turn-taking structure, but rather form an open online conversation in which the sequence of messages and the textual references, hyperlinks, replies, comments, hashtags, and address signs in messages were used for studying interaction patterns in framing and emotion discourse. The text, time, author, and media source of messages were imported as columns in Excel, and additional columns were created as code categories for issue frames, identity frames and characterization frames (including labels and dispositional attributes), the discursive device and function of "emotion*," the use of emotion lexicon (various emotion words, e.g., anger, love, and sadness) that refer to or imply specific emotions as distinct discursive categories, the attribution of emotions to individual or collective agents or actions, interaction indicators (mentioned above) and other significant patterns that emerged from the data such as popular rhetorical devices (hashtags and action frames) and the strategic use of or references to social media.

We then first reconstructed the sequence of events for each case (supplemented as Appendix S2) and determined the key interactions or "discursive shifts" in the conversations (presented in Figure 1) based on significant changes in the above mentioned categories. We then analyzed the structural role of frame interactions and the discursive use of emotions in the course of the interactions (presented as the results of this study): For the framing analysis, we identified the main issue and identity frames in each phase of each case based on synthesizing the codes of step 1. We then studied how these frames interact across the cases and phases (how disputants respond to each frame), which resulted in the conflict framing

repertoire presented in Figure 2. For the analysis of emotion discourse, we identified key discursive strategies across the cases and phases (based on the synthesis of codes), to discern how emotion is explicitly and implicitly employed (as discursive device) to frame issues and identities (as discursive function), of which the results are presented in Figure 3.

Results

The cases show similarities in issue and identity framing and the discursive use of emotions over the course of the conversation. Figure 1 synthesizes the key discursive interactions between animal rights advocates and farmers in the calf puller (CP) and calf separation (CS) case in 6 steps or "discursive shifts." To understand these dynamics, the succeeding analysis focusses on the structural role of framing and the discursive use of emotion throughout the conversation.

The main issue and identity frames that we identified in these two cases and throughout the phases are similar. Moreover, each of the issue frames that is pushed forward in these cases implicates a corresponding identity frame. Hence, we identify a conflict framing repertoire (Figure 2) that disputants use to make sense of the situation (understood as conflict) in which both issue and identity frames are based on a binary opposition. The binary opposition is initially established through issue framing (through which the opposition between the groups is implied), but in the second phase escalates into an identity conflict that involves blaming and labeling in characterization and collective identity framing.

Animal Welfare as Common Value frame

Both parties consider the two policy issues to be a matter of taking care for animals (Figure 1, step 1 and 2: "animals are/will be hurt"). In the debate, animal welfare is considered to be of absolute, not relative, importance; it is unacceptable to weigh animal welfare against other values or interests, such as economic value. Disputants thus share a moral or value frame that is dominant in both debates (reflected by the overarching frame *animal welfare* in Figure 2); decisions and (discursive) actions should be morally right, based on what is best for the cows and calves. However, farmers and animal right advocates have

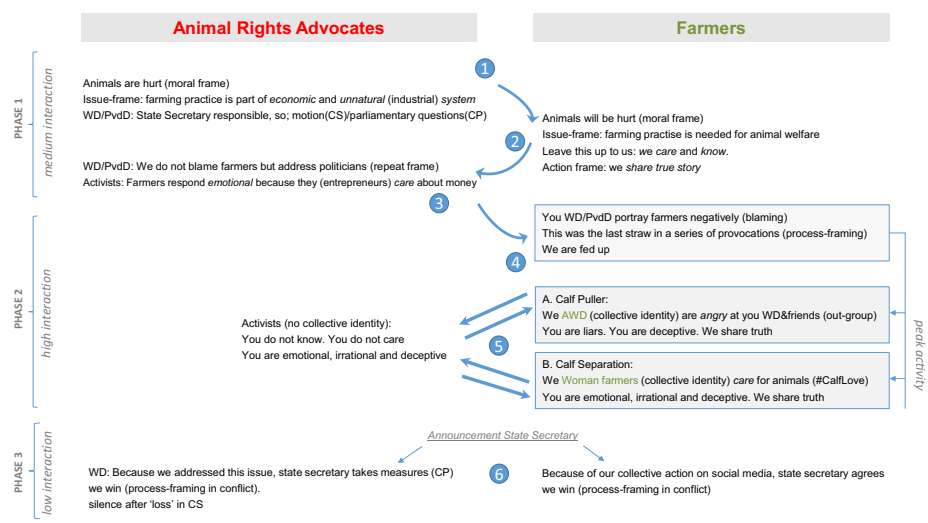


Figure 1. Synthesis of the discursive interactions between animal rights advocates and farmers in the calf puller (CP) and calf separation (CS) case. WD, Wakker Dier; PvdD, Political Party for Animals; AWD, Anti Wakker Dier.

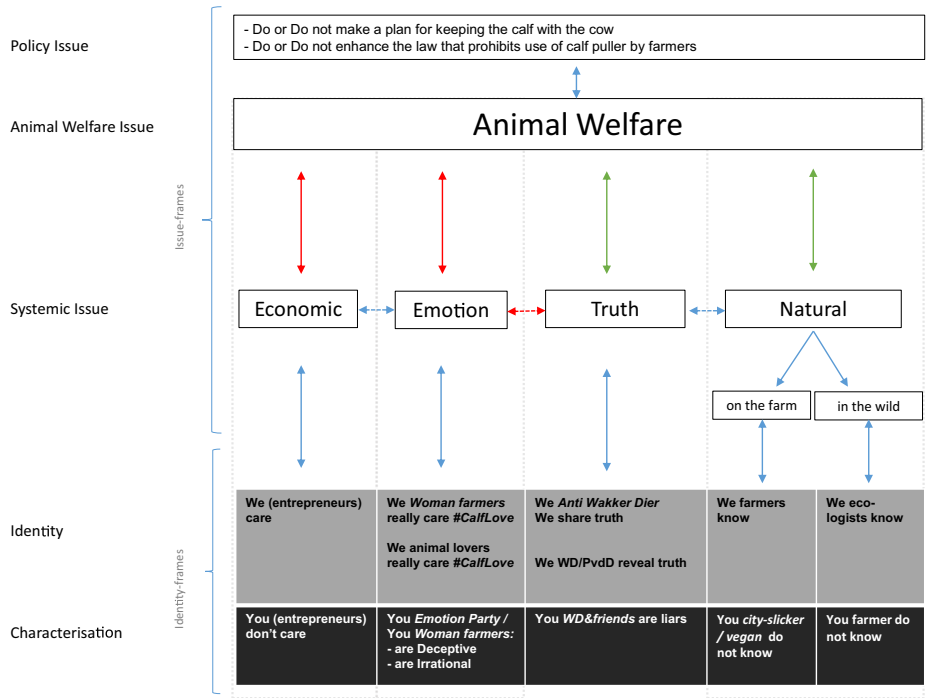


Figure 2. Conflict framing repertoire. The two parties have different ideas about the policy solution (top layer), but both parties frame this as a moral matter concerning animal welfare; policy measures should be based on what is good for animals (second layer). To evaluate what is good for animal welfare both parties make use of four frames, with issue and identity frame components. The color of arrows reflect the type of relation as contrasting (red) or corresponding (green), or more neutrally as extending (blue). Italicized words are frequently used labels of disputants to identify/characterize a group.

different opinions about the policy solution and responsibilities concerning the calf puller and calf separation; animal right advocates call for governmental intervention, while farmers want to maintain their autonomy. The common care for animals (common value) does not result in a dialogue in search for the best policy solution, but in a conflict in which frames are used to create a difference between the groups. Since both parties claim to know what is best for animal welfare but have distinct opinions about the policy solution, the discussion gets focussed on who knows best (expertise/knowledge), and who cares most for these animals (trustworthiness and moral superiority). Hence, the parties agree about the generic issue at stake, but argue that their group is more knowledgeable and trustworthy to judge about what is good for the animals. In order to build credibility of the in-group and/or to undermine the credibility of the out-group, each of the issue frames that is used by the parties implicates a corresponding identity frame and thus establishes the binary opposition of the conflict framing repertoire.

Issue and Identity Frames

We identified four frames that create a difference out of the common care for animals: the economic frame, the natural frame, the emotion frame and the truth frame, each implicating specific identity frames. These four frames constitute moral, issue, and identityframe components and reflect a similar line of reasoning: (a) Animal welfare is opposed to economic interest, and because you are an entrepreneur, you are wrong; (b) animal welfare is opposed to emotion, and because you are emotional, you are

wrong; (c) animal welfare is about what is true, and because we are farmers and see our animals every day, we know and we are right; (d) animal welfare is about what is natural, and because we are nature-lovers, we know and we are right. Each of these lines of reasoning has a binary opposite expressed by the other party.

As one cannot be against animal welfare, animal welfare is contrasted with other categories as the negative side of a binary opposition (signified by the red lines from animal welfare to *economic* and *emotion* in Figure 2), which is linked to the out-group (signified by the identity frames in the same vertical line). Animal welfare is frequently contrasted with economic interest throughout both cases. Farmers are portrayed as entrepreneurs (stereotype), primarily interested in money (attribute) to undermine their credibility. On the other hand, farmers counter argue that animal welfare does not conflict but corresponds with economic interest and that they thus do care for their animals. Moreover, they counter the policy solution of Wakker Dier/Party for the Animals which bypasses farmers, by presenting themselves as independent, knowledgeable and caring (attributes) entrepreneurs (identity) that do not need governmental interference.

Animal welfare is also contrasted with emotion. In the calf separation case, animal welfare is explicitly opposed to emotions ("it is about animal welfare or emotions, we go for the first"), and emotions are explicitly opposed to facts ("this is about emotions vs. facts"). In both cases, this frame is mostly used by farmers in phase 2 and is part of a larger frame in which animal welfare advocates are portrayed as emotional and sentimental. Emotions are explicitly used to frame the other as deceptive ("you make use of emotions") and irrational ("you react out of emotion"), and to stereotype the out-group: "Political Party of Emotions." In addition, in both cases, but more prominent in the calf puller case, farmers "share the true story" and blame animal welfare advocates for telling lies, framing the issue as a matter of truth. In this line, farmers present themselves as experienced and empirical experts. Hence, more generally, truth, facts, and objectivity are contrasted with emotion, sentiment, and subjectivity (indicated by the dotted red line between the issue frames in Figure 2). The emotion and truth frames are introduced by farmers in response to the frames of animal right advocates (economic and natural frame) but gets employed on both sides, particularly in phase 2.

The natural frame functions as a heuristic that articulates opposed worldviews. To evaluate what is good for the animal in regard to the use of the calf puller and the separation of calves, discussants evaluate what is "natural": what's natural is good for the animal. Naturalness seems to own the two important features that can make an argument hard to challenge: It is rather vague and it appeals to a kind of common sense logic shared by members of the culture. The parties have two contrasting notions about what is natural: farmers look at nature on the farm (the domesticated animal within the current farming system), while animal right advocates and ecologists look at animals in wildlife or on ecological farms (alternative systems) and make comparisons with humans. This frame is mostly used by animal right advocates but farmers also use this frame and characterize the out-group as "city-slickers" and "vegans," who logically do not know anything about animals on the farm. Moreover, they refer to these statements as sentimental and irrational, and stress their knowledge and access to an objective truth (employing the emotion–truth frame in response).

Although animal right advocates mainly use the economic and natural frame and farmers respond with the emotion and truth frame, each issue frame is ultimately used by both sides as disputants counter each other through reciprocated accusations (using similar frames, but opposing positions)—reflecting an antagonistic interaction. Hence, although the two groups frame farmers and animal rights advocates differently, they frame themselves and the others (the in-group and out-group) similarly. What is unity or frame similarity at a generic level (e.g., both employ the emotion frame) is polarity at a specific level (e.g., Woman Farmers as emotional vs. the PvdD as "emotion party"). We refer to this as symmetric frames. Hence, the issue and identity frames comprise a system of interaction that constitutes the symmetric conflict framing repertoire.

The Discursive Use of Emotion in Issue and Identity Framing

We identified four key discursive strategies in which emotion is explicitly/implicitly employed to frame issues/identities:

(**1**) Emotion is *explicitly* used as an *issue frame* ("it is a choice between emotion or animal welfare")
(**2**) Emotion is *explicitly* used; (a) to frame the *other* (*group*) as deceptive (*you make use of emotion*) and irrational (*you react out of emotion*), and; (b) to stereotype/characterize the out-group ("Political Party of Emotions"/"Emotion Party")
(**3**) Emotions are *implicitly* used; (a) to frame *oneself* as loving/caring (*I/We care for animals*), and; (b) to frame the *in-group* as caring (*We* "Woman Farmers" care for/love our calves).
(**4**) Emotions are *implicitly* used to frame (binary) relationships through punctuation in process framing;

(a) the actions of the out-group have emotional impact on, and justify the actions of the *in-group* (because you did this, we are *angry* and attack you)—blaming and justification
(b) the emotions expressed by the *out-group* are framed as a result of hidden interests/values (you are *sad/angry* because you care about money)—framing the other as deceptive
(c) the reactions of the out-group are framed as outrageous and out of place (we are surprised about your *outrageous* reaction)—framing the other as irrational

These discursive strategies are used by both parties throughout the different phases, but some strategies become frequently employed by one of the parties at a particular moment, after which the conversation takes a turn (see discursive steps in Figure 1). In the first phase, farmers stress their care and love for animals in response to the critique on their farming practice, to defend their credibility (which is supportive to their main frame: leave this up to us, because we care and know; step 2, discursive strategy 3). Animal right advocates frame this response of farmers as emotional and unreasonable (step 3, discursive strategy 2a). Moreover, these emotions are said to result from their interest in money, not their care for animals (step 3, discursive strategy 4b + 4c), implying that farmers are deceptive and thus not trustworthy, which again triggers a defensive response of farmers. In the calf separation case, we found a more offensive response of farmers right from the start, in which they also undermined the credibility of the Party for the Animals and animal rights advocates, by accusing them for being emotional (irrational) and for making use of emotion (being deceptive; discursive strategy 2a). However, in both cases there is little blaming and justification (4a), characterization (2b), and collective identity framing (3b) in this first phase.

In the second phase, emotion discourse is employed for blaming, characterization, and collective identity framing: Farmers stress that they are fed up by the actions of animal rights advocates (*their use of emotions/their lies*); that these actions affect them emotionally (*we are hurt/we are angry*), and that these emotions justify and explain their collective action (*Woman Farmers Love/ Anti Wakker Dier attacks*). Hence, animal right advocates are blamed for making use of emotions and for telling lies (step 4 + 5, discursive strategy 2a) and are accused to have caused emotions among farmers, which justifies and casts their collective emotive action (step 4 + 5, discursive strategy 4a). Moreover, while farmers implicitly use emotion to frame and justify their collective action, animal right advocates, in turn, explicitly use emotion to frame their reaction as irrational and deceptive. These self-reinforcing patterns of emotional communication also increase the affordance of emotion as explicit issue and identity frame (discursive strategy 1 and 2). Although emotion is used as a framing device by both parties throughout the conflict, farmers increasingly use emotion discourse for collective identity framing in this phase: framing the in-group as loving/caring (*Woman farmers* as *caring* and *loving*), and framing the out-group explicitly in terms of emotions (*The Emotion party; Political Party of Emotions*). In the third phase, when the state secretary announced his/her decision, farmers and animal right advocates barely interact, as they do not respond to each other but to the policy statement, framing the decision as a victory/success for their in-

group or the general public. Hence, after the political announcement the emotional recriminations between the groups dissolve and the conflict returns dormant.

Discursive Interactions

Taken together, the discursive uses of emotion reinforce each other and shape conflict dynamics in two ways: First, the implicit use of emotional language and the explicit condemnation supports a cyclical contestation of credibility (left side of Figure 3). On the one hand, emotions are *implicitly* used to frame oneself as caring, loving, and sensitive (*we love/care for animals*)—to build credibility. On the other hand, emotion is *explicitly* used to frame the other as deceptive (*you make use of emotion*) and irrational (*you react out of emotion*)—to undermine their credibility. These discursive acts reinforce each other: As credibility is at stake, emotions are implicitly used to frame oneself as caring and trustworthy, but as these emotions are explicated and condemned by the other party, credibility is again contested.

Second, disputants express collective emotions as a response to the other group's offensive actions (blaming) and as a justification of one's own actions directed against the other party, which drives recriminations (right side of Figure 3). Besides the general emotional aggravation that tends to go with reciprocal accusations, blaming plays a crucial role in the discursive shifts in these conflicts. In both cases, the conflict escalates when an action that is directed to politicians (the public campaign *#CalfLove* of farmers, and the open letter of Wakker Dier to the state secretary) is responded to and condemned by the other group. Hence, blaming shifts the attention from the issue to the other group and sets in motion

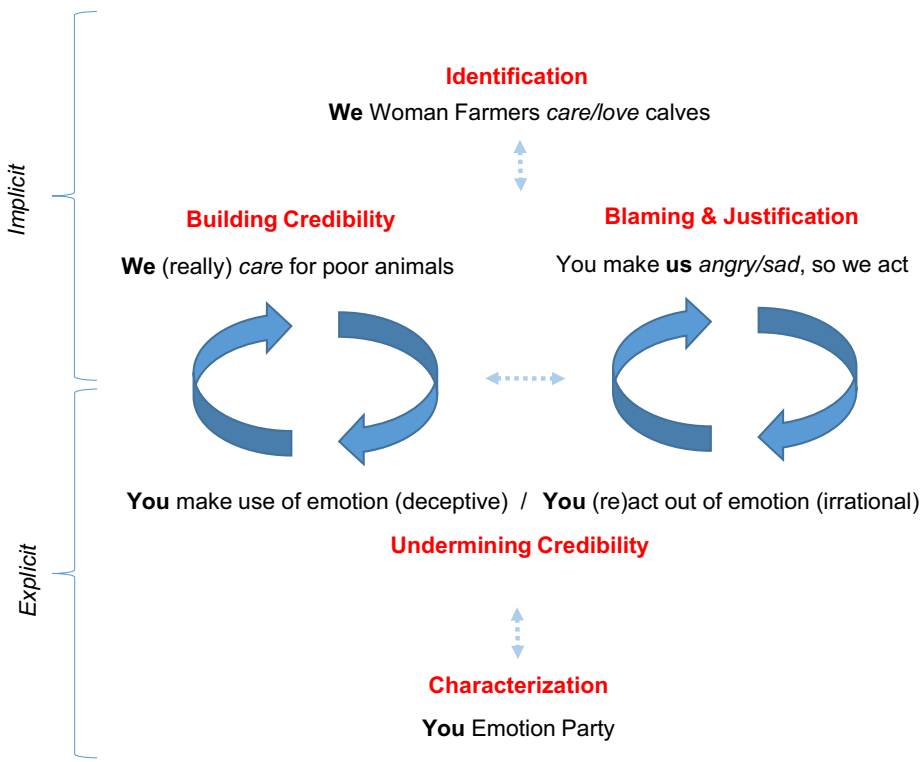


Figure 3. The discursive use of emotions in interactions. It shows (1) the use of emotion in the cyclical contestation of credibility (left side), (2) how emotion is used in process framing; blaming and justification (right side), (3) how emotion is implicitly use to build credibility and frame one's own identity (upper), and how emotions is explicitly condemned and used to characterize the out-group (lower).

the recriminations. Moreover, when the state secretary makes a public announcement about the policy decision at the start of phase 3, the groups respond to this statement instead of each other, which ends the antagonistic intergroup interactions (de-escalation; the conflict returns dormant).

Discussion

In contrast to previous studies that have pointed out that conflicts ensue from differences between disputant's framings (De Dreu & McCusker, 1997; Pinkley & Northcraft, 2018; Vaughan & Seifert, 1992), this study found that two groups used the same set of issue and identity frames to directly oppose each other. Many researchers have pointed out the binary opposition at the root of conflicts in terms of a polarization along fault lines (Van Herzele et al., 2015), contradiction in communication systems (Bösch, 2017), a dance of opposites (Cloke, 2013), or a dialectic that holds opposite poles together (Putnam, 2005). However, in framing literature this has not yet been acknowledged in terms of a direct opposition within a shared set of frames. Although frames come in hierarchies (unity at the generic level can be contrasted at the specific level), we assert that our findings reflect an empirical—not an analytical—difference in comparison with other studies: the groups not only presented a similar view on the generic issue at stake (viz. animal welfare) but also used the same set of issue frames to make sense of animal welfare (i.e., to make a difference out of the common generic moral frame).

Moreover, except for the increased use of labels for collective identity framing and characterization in phase 2, the frames were relatively stable throughout the conflict. Although disputants frequently shifted frames in response to each other, the issue frames and identity frames interacted in ways that reinforced their stability. This resulted in a constant set of frames throughout the three conflict phases. Since the two groups used similar frames in the two cases and throughout the three phases, we identify this as a symmetric conflict framing repertoire. This repertoire is a cohesive system of interaction that can become activated when these two groups discuss the issue of animal welfare in industrial livestock farming and is thus case-specific.

However, we assert that a symmetric framing repertoire among opposing groups could be present in other conflicts. Most framing studies in conflict research have looked at interpersonal or intragroup conflicts in organizations (Coleman, 2006; Hurt & Welbourne, 2018; Pluut & Curşeu, 2013), and at multiparty conflicts in environmental governance that involve more than two parties in a professional setting and require negotiation to come to solutions (Brummans et al., 2008; Davis & Lewicki, 2003; Lewicki et al., 2003). In an identity conflict between two parties, however, opponents assign an identity to themselves and their adversaries, each side believing the fight is between "us" and "them" (Wondolleck, Gray, & Bryan, 2003), which is more likely to generate the binary opposition at the root of the symmetric conflict framing repertoire. Moreover, if these groups are not involved in a negotiation as part of a decision-making process, they are more likely to promote and strengthen their position in public rather than to engage in constructive interactions (Beierle, 2005). In these situations, social media provide a public platform for identity-based interactions, such as the use of community platforms as battlegrounds of the conflict (e.g., *Anti Wakker Dier* and *Wakker Dier* Facebook pages), competition over collective action frames (e.g., *#CalfLove*), and the use of various interactive functions such as addressing, replying, retweeting, commenting, and sharing for in-group and intergroup communication. Hence, to determine if, and if so under what circumstances, groups use the same set of issue and identity frames, future studies could analyze other online conflicts between two groups that recurrently clash over policy issues.

Looking more closely at the basic elements of the repertoire, we can identify different opinions about a contingent policy issue (that can make a conflict salient if the policy issue is on the agenda, or latent when the policy issue is off the agenda), an overarching shared dominant moral frame and a set of issue frames and identity frames that correspond, extend or contrast each other and together comprise a self-reinforcing system of interactions. This study indicates that a shared dominant moral frame combined with opposed ideas about the solutions can generate interactions that revolve around the contestation of credibility,

particularly when the proposed policy solution limits the autonomy of one of the parties. Credibility is the perceived expertise and trustworthiness of an actor in a specific context, usually as the source of a message (Rieh & Danielson, 2007). Credibility is sought not so much by the other party in the conflict, but by "the audience" as a third party in this public intergroup conflict. After all, the parties do not consider themselves to be a part of negotiation or deliberative process that asks for an agreement, but consider themselves to be part of a zero-sum game with the decision-makers as final adjudicators. The assumption that underlies the contestation of credibility is that only one of the parties can be right (which reflects the perceived "goal incompatibility" and zero-sum situation at the root of a conflict frame), and that considering the fact that the two parties express the same moral perspective, the one who is most knowledgeable and trustworthy must be right. This line of reasoning is reflected in the four frames of the repertoire that constitute moral, issue, and identity frame components. Hence, in order to build credibility of the in-group and/or undermine the credibility of the out-group, each of the issue frames employed by the parties implicates a corresponding identity frame. In contrast to credibility, identity refers to the inherent, more dispositional, characteristics that mark a person or group (Fiol, Pratt, & O'Connor, 2009; Tajfel & Turner, 1979). If disputants strongly identify with a social group that is made salient in the context, such as the Dutch farmers in this case (De Weerd & Klandermans, 1999; Klandermans, Sabucedo, & Rodriguez, 2002), the contestation of credibility is more likely to generate an identity conflict (Tajfel & Turner, 1979). We speak of an identity conflict when the attention for the issue (in this case the calf puller and calf separation) moves to the background, and identity itself becomes at stake (Bösch, 2017; Wondolleck et al., 2003). Although we did find an increase of characterization and collective identity framing in the second phase, we do not claim that the contestation of credibility or the use of specific issue frames *led to* an identity conflict. Instead, we consider the symmetric conflict framing repertoire to be a system of interaction (Bösch, 2017; Coleman, 2006; Coleman et al., 2005) constituted by binary opposites at the heart of an identity conflict. This opposition is reflected in the symmetric issue frames and identity frames of the repertoire.

To understand the conflict dynamics, we looked more specifically at the discursive shifts in these cases and the way emotion discourse was used in interaction. We found that the conflict escalated through the use of emotion discourse in labeling and blaming groups. Emotions comprise a wide range of sentiments from positive to negative, each with unique characteristics and discursive affordances (Edwards, 1999; Potter & Hepburn, 2007). The emotions most referred to in these cases are *anger, sadness*, and *love*. Moreover, disputants used a range of discursive devices to imply specific emotions, such as emphasizing their *care* for animals and caring character (e.g., as *mother*, or *farmer woman*), and to imply their altruistic or emphatic affection for animals (Taggart, 2011; Weicht, 2008) in combination with expressions of love (e.g., *CalfLove*). In our analysis, however, we simply distinguished the explicit use of emotion as discursive category, and various emotion words (psychological thesaurus) that refer to or imply specific emotions as the implicit use of emotion discourse. Based on this rudimentary distinction, we found that disputants generally imply emotions to build credibility and that disputants tended to respond to and define this discourse explicitly in terms of *emotion*—not in terms of the *anger*, *sadness*, *love* or *care* expressed by the other party—to undermine their credibility. The use of emotion discourse for building credibility has been reported in earlier research (Edwards, 1999; Locke & Edwards, 2003; Van der Meer & Verhoeven, 2014) as well as the use of emotion as a negative frame in conflicts (Jones, 2001). However, to our knowledge this is the first study to indicate that these two form an interactive mechanism in conflict escalation. Second, the role of blaming and justification in conflict is reported in other studies (Fuller & Putnam, 2018; Idrissou et al., 2011), as well as the use of emotion discourse in blaming and justification (Buijs & Lawrence, 2013; Ransan-Cooper, Ercan, & Duus, 2018). However, to our knowledge this study is the first to indicate that the discursive use of collective emotions in blaming and justification can both trigger and aggravate an intergroup conflict.

This study inferred the discursive interactions based on the sequence of messages and interaction indicators (replies, comments, address signs, textual references, etc.) in messages on an open online platform. Moreover, we focussed on interactions on group level, between farmers on the one hand and animal

welfare advocates on the other. This enabled us to study discursive shifts in conflict dynamics at a generic level. However, discursive interactions in conflicts can be studied in much greater detail through conversational analysis (Potter & Hepburn, 2007) and if the fluid and permeable boundaries of groups and group membership are taken into account (Halevy & Cohen, 2019; Paul et al., 2016).

Conclusion

In this comparative case study, we analyzed two social media conflicts between farmers and animal right advocates to understand how conflicts establish, escalate, and return dormant through issue and identity framing and the discursive use of emotions. In contrast to previous framing studies in conflict research, we found that the two groups used the same set of frames and did so consistently throughout the three phases of both cases. We identify this as a symmetric conflict framing repertoire. The groups share a dominant moral frame (animal welfare is of absolute value), but have distinct views on policy solutions. The common value does not result in a dialogue in search for the best policy solution, but in a conflict in which disputant use the same set of issue and identity frames "to make a difference" between the groups, in which each of the issue frames implies a corresponding identity frame. We thus consider the conflict framing repertoire to be a system of interaction constituted by binary opposites at the heart of an identity conflict that is reflected in the issue frames and identity frames. Based on a comparison with other conflict studies, we hypothesize that a symmetric conflict framing repertoire is more likely to be present (a) if conflicts involve only two groups, (b) if the groups are not involved in a decision-making process, (c) if the decision has implications for the autonomy for at least one of these groups, (d) if disputants strongly identify with a social group that is made salient in the context, (e) if the groups can engage in identity-based interactions on a public platform, such as on social media.

To understand the conflict dynamics we looked specifically at the discursive shifts in these cases and the way emotion discourse was used in interaction. The binary opposition is initially established through issue framing but escalates into an identity conflict that involves group labeling and blaming. The discursive use of emotion reinforces this escalation in two ways. First, it reinforces a vicious cycle in the contestation of credibility: While emotions are implicitly used to frame oneself as caring and trustworthy, emotion is explicitly used to frame the other party as deceptive and irrational. Second, disputants express collective emotions as a response to the other group's offensive actions (blaming) and as a justification of one's own collective actions directed against them.

The frame interactions and the discursive use of emotion shape the three conflict phases that we identified in these cases. First, the conflict framing repertoire becomes activated when farmers frame a public statement of animal right advocates directed at politicians (a third party outside the conflict) as an offensive act that contests their credibility. The issue and identity frames that disputants use tend to reinforce each other and establish the conflict framing repertoire as a system of interaction. Second, the conflict escalates through blaming and labeling in characterization and collective identity framing. Emotions discourse is used to label collective agents (characterization) and their actions (blaming) which triggers recriminations and shifts attention from the policy issue to the identity conflict. Third, the announcement on the policy decision by the state secretary shifts the attention away from the identity conflict and takes the issue off the policy agenda. This ends the use of emotion discourse in recriminations and the conflict framing repertoire returns dormant.

References

Bar-Tal, D., Halperin, E., & de Rivera, J. (2007). Collective emotions in conflict situations: Societal implications. *Journal of Social Issues*, *63*, 441–460. https://doi.org/10.1111/j.1540-4560.2007.00518.x

Beierle, T. C. (2005). Using social goals to evaluate public participation in environmental decisions. *Review of Policy Research*, *16*(3–4), 75–103. https://doi.org/10.1111/j.1541-1338.1999.tb00879.x

Bennett, W. L., & Segerberg, A. (2011). The logic of connective action: Digital media and the personalization of contentious politics. *Information, Communication & Society*, *15*, 739–768. https://doi.org/10.1080/1369118X.2012.670661

Bodtker, A. M., & Katz Jameson, J. (2001). Collective emotions in conflict situations: Societal implications. *International Journal of Conflict Management*, *12*(3), 259–275. https://doi.org/10.1108/eb022858

Bösch, R. (2017). Conflict escalation. *Oxford Research Encyclopedia of International Studies*, *1*(April), 1–25. https://doi.org/10.1093/acrefore/9780190846626.013.82

Brady, W. J., Wills, J. A., Jost, J. T., Tucker, J. A., & van Bavel, J. J. (2017). Emotion shapes the diffusion of moralized content in social networks. *Proceedings of the National Academy of Sciences*, *114*, 7313–7318. https://doi.org/10.1073/pnas.1618923114

Bramsen, I., & Poder, P. (2014). Theorizing three basic emotional dynamics of conflicts: A situational research agenda. *Peace Research*, *46*(2), 51–86. https://search-proquestcom.ezproxy.ub.gu.se/docview/1795938452/fulltextPDF/23230AB686834200PQ/1?accountxml:id=11162

Brummans, B. H. J. M., Putnam, L., Gray, B., Hanke, R., Lewicki, R. J., & Wiethoff, C. (2008). Making sense of intractable multiparty conflict: A study of framing in four environmental disputes. *Communication Monographs*, *75*(1), 25–51. https://doi.org/10.1080/03637750801952735

Buijs, A., & Lawrence, A. (2013). Emotional conflicts in rational forestry: Towards a research agenda for understanding emotions in environmental conflicts. *Forest Policy and Economics*, *33*, 104–111. https://doi.org/10.1016/j.forpol.2012.09.002

Cloke, K. (2013). *The dance of opposites: Explorations in mediation, dialogue and conflict resolution systems design*. Dallas, TX: Goodmedia Communications.

Coleman, P. (2006). Conflict, complexity, and change: A meta-framework for addressing protracted, intractable conflicts–III. *Peace and Conflict: Journal of Peace Psychology*, *12*, 325–348. https://doi.org/10.1207/s15327949pac1204_3

Coleman, P., Vallacher, R., Nowak, A., & Bue Ngoc, L. (2005). Intractable conflict as an attractor: Presenting a dynamical model of conflict, escalation, and intractability. *SSRN Electronic Journal*, 1454–1475. https://doi.org/10.2139/ssrn.734963

Davis, C. B., & Lewicki, R. J. (2003). Environmental conflict resolution: Framing and intractability – An introduction. *Environmental Practice*, *5*(3), 200–206. https://doi.org/10.1017/S1466046603035580

De Dreu, C. K. W., & McCusker, C. (1997). Gain-loss frames and cooperation in two-person social dilemmas: A transformational analysis. *Journal of Personality and Social Psychology*, *72*, 1093–1106. https://doi.org/10.1037/0022-3514.72.5.1093

De Weerd, M., & Klandermans, B. (1999). Group identification and political protest: Farmers' protest in the Netherlands. *European Journal of Social Psychology*, *29*, 1073–1095. https://doi.org/10.1002/(SICI)1099-0992(199912)29:8<1073:AID-EJSP986>3.0.CO;2-K

Del Vicario, M., Bessi, A., Zollo, F., Petroni, F., Scala, A., Caldarelli, G., et al. (2016). The spreading of misinformation online. *Proceedings of the National Academy of Sciences*, *113*, 554–559. https://doi.org/10.1073/pnas.1517441113

Dewulf, A., Gray, B., Putnam, L., Lewicki, R. J., Aarts, N., Bouwen, R., et al. (2009). Disentangling approaches to framing in conflict and negotiation research: A meta-paradigmatic perspective. *Human Relations*, *62*(2), 155–193. https://doi.org/10.1177/0018726708100356

Edwards, D. (1999). Emotion discourse. *Culture & Psychology*, *5*(3), 271–291. https://doi.org/10.1177/1354067X9953001

Elliott, M., & Kaufman, S. (2003). *Building civic capacity to resolve environmental conflicts. Environmental Practice*. Cambridge University Press. https://doi.org/10.1017/S146604660303566X

Fiol, C. M., Pratt, M. G., & O'Connor, E. J. (2009). Managing intractable identity conflicts. *Academy of Management Review*, *34*(1), 32–55. https://doi.org/10.5465/amr.2009.35713276

Fuller, R. P., & Putnam, L. (2018). Union framing of conflict-related issues in the entertainment industry. *Conflict Resolution Quarterly*, *36*(1), 53–67. https://doi.org/10.1002/crq.21221

Gray, B. (2004). Strong opposition: Frame-based resistance to collaboration. *Journal of Community and Applied Social Psychology*, *14*(3), 166–176. https://doi.org/10.1002/casp.773

Gross, J.J., Halperin, E., & Porat, R. (2013). Emotion Regulation in Intractable Conflicts. *Current Directions in Psychological Science*, *22*(6), 423–429. https://doi.org/10.1177/0963721413495871

Guerrero, L. K., & La Valley, A. G. (2006). Conflict, emotion, and communication. In J. G. Oetzel & S. Ting-Toomey (Eds.), *The SAGE handbook of conflict communication: Integrating theory, research, and practice* (pp. 69–96). Thousand Oaks, CA: SAGE Publications, Inc. https://doi.org/10.4135/9781412976176.n3

Gunkle, G., Watzlawick, P., Beavin, J. H., & Jackson, D. D. (2006). Pragmatics of human communication. *Educational Theatre Journal*, *27*(1), 143. https://doi.org/10.2307/3206369

Halevy, N., & Cohen, T. R. (2019). Intergroup conflict 2020. *Negotiation and Conflict Management Research*, *12* (2), 161–173. https://doi.org/10.1111/ncmr.12148

Hurt, K. J., & Welbourne, J. (2018). Conflict and Decision-making: Attributional and emotional influences. *Negotiation and Conflict Management Research*, *11*(3), 225–251. https://doi.org/10.1111/ncmr.12133

Idrissou, L., Paassen, A., Aarts, N., & Leeuwis, C. (2011). The discursive construction of conflict in participatory forest management: The case of the Agoua forest restoration in Benin. *Conservation and Society*, *9*(2), 119. https://doi.org/10.4103/0972-4923.83722

Iyer, A., & Leach, C. W. (2008). Emotion in inter-group relations. *European Review of Social Psychology*, *19*(1), 86–125. https://doi.org/10.1080/10463280802079738

Jennings, C. (2011). Intra-group competition and inter-group conflict: An application to Northern Ireland. *Defence and Peace Economics*, *22*(1), 63–83. https://doi.org/10.1080/10242694.2010.491672

Jones, T. (2001). Emotional communication in conflict. In W. F. Eadie, Nelson, P. E. (Eds.), *The language of conflict and resolution* (p. 131). London, UK: Sage Publications.

Kendall, H. A., Lobao, L. M., & Sharp, J. S. (2006). Public concern with animal well-being: Place, social structural location, and individual experience. *Rural Sociology*, *71*, 399–428. https://doi.org/10.1526/003601106778070617

Klandermans, B., Sabucedo, J., & Rodriguez, M. (2002). Identity processes in collective action participation: Farmers' identity and farmers' protest in the Netherlands and Spain. *Political Psychology*, *23*(2), 235–251. https://doi.org/10.1111/0162-895X.00280

Kriesberg, L. (1993). Intractable conflicts. *Peace Review*, *5*, 417–421. https://doi.org/10.1080/10402659308425753

Laine, M., & Vinnari, E. (2017). The transformative potential of counter accounts: A case study of animal rights activism. *Accounting, Auditing and Accountability Journal*, *30*, 1481–1510. https://doi.org/10.1108/AAAJ-12-2015-2324

Lewicki, R. J., Gray, B., & Elliott, M. (2003). *Making sense of intractable environmental conflicts: Frames and cases*. Washington, DC: Island Press.

Locke, A., & Edwards, D. (2003). Bill and Monica: Memory, emotion and normativity in Clinton's Grand Jury testimony. *British Journal of Social Psychology*, *42*(2), 239–256. https://doi.org/10.1348/014466603322127238

Owen, L., Howard, W., & Waldron, M. (2000). Conflicts over farming practices in Canada: The role of interactive conflict resolution approaches. *Journal of Rural Studies*, *16*, 475–483. https://doi.org/10.1016/S0743-0167(00)00023-1

Paul, G. D., Geddes, D., Jones, T., & Donohue, W. A. (2016). Revitalizing conflict research with a communication perspective: Celebrating and learning from Linda Putnam's contributions to the study of conflict. *Negotiation and Conflict Management Research*, *9*, 309–331. https://doi.org/10.1111/ncmr.12080

Pearce, B. W., & Littlejohn, S. W. (1997). *Moral conflict: When social worlds collide*. London, UK: Sage Publications.

Pinkley, R. L., & Northcraft, G. B. (2018). Conflict frames of reference: Implications for dispute processes and outcomes. *Academy of Management Journal*, *37*(1), 193–205. https://doi.org/10.5465/256777

Pluut, H., & Curşeu, P. L. (2013). Perceptions of intragroup conflict: The effect of coping strategies on conflict transformation and escalation. *Group Processes & Intergroup Relations*, *16*, 412–425. https://doi.org/10.1177/1368430212453633

Potter, J., & Hepburn, A. (2007). Discursive psychology: Mind and reality in practice. In A. Weatherall, B. M. Watson, C. Gallois, *Language, discourse and social psychology* (pp. 160–180). London, UK: Palgrave Macmillan. https://doi.org/10.1057/9780230206168_7

Putnam, L. (2005). Discourse analysis: Mucking around with negotiation data. *International Negotiation*, *10*(1), 17–32. https://doi.org/10.1163/1571806054741083

Putnam, L., & Holmer, M. (1992). Framing, reframing, and issue development. In L. L. Putnam, & M. E. Roloff (Eds.), *Communication and negotiation* (pp. 128–155). Newbury Park, CA: Sage.

Putnam, L., & Shoemaker, M. (2007). Changes in conflict framing in the news coverage of an environmental conflict. *Journal of Dispute Resolution*, *2007*(1), 167–175.

Ransan-Cooper, H., Ercan, A., & Duus, S. (2018). When anger meets joy: How emotions mobilise and sustain the anti-coal seam gas movement in regional Australia. *Social Movement Studies*, *17*, 635–657. https://doi.org/10.1080/14742837.2018.1515624

Rieh, S. Y., & Danielson, D. R. (2007). Credibility: A multidisciplinary framework. *Annual Review of Information Science and Technology*, *41*, 307–364. https://doi.org/10.1002/aris.2007.1440410114

Rogan, R. G. (2006). Conflict framing categories revisited. *Communication Quarterly*, *54*(2), 157–173. https://doi.org/10.1080/01463370600650860

Rothman, J. (1997). *Resolving identity-based conflict in nations, organizations, and communities*. The Jossey-Bass, University of Michigan.

Seawright, J., & Gerring, J. (2008). Case selection techniques in case study research. *Political Research Quarterly*, *61*(2), 294–308. https://doi.org/10.1177/1065912907313077

Solak, N., Reifen Tagar, M., Cohen-Chen, S., Saguy, T., & Halperin, E. (2017). Disappointment expression evokes collective guilt and collective action in intergroup conflict: The moderating role of legitimacy perceptions. *Cognition and Emotion*, *31*, 1112–1126. https://doi.org/10.1080/02699931.2016.1197098

Stevens, T. M., Aarts, N., & Dewulf, A. (2019). The emergence and evolution of master terms in the public debate about livestock farming: Semantic fields, communication strategies and policy practices. *Discourse, Context and Media*, *31*, 100317. https://doi.org/10.1016/j.dcm.2019.100317

Stevens, T. M., Aarts, N., Termeer, C. J. A. M., & Dewulf, A. (2018). Social media hypes about agro-food issues: Activism, scandals and conflicts. *Food Policy*, *79*, 23–34. https://doi.org/10.1016/j.foodpol.2018.04.009

Taggart, G. (2011). Don't we care?: The ethics and emotional labour of early years professionalism. *Early Years*, *31*(1), 85–95. https://doi.org/10.1080/09575146.2010.536948

Tajfel, H., & Turner, J. C. (1979). An integrative theory of intergroup conflict. In W. G. Austin, & S. Worchel (Eds.), *The social psychology of intergroup relations* (pp. 33–47). Monterey, CA: Brooks/Cole. https://doi.org/10.1016/S0065-2601(05)37005-5

Te Velde, H., Aarts, N., & Van Woerkum, C. (2002). Dealing with ambivalence: Farmers' and consumers' perceptions of animal welfare in livestock breeding. *Journal of Agricultural and Environmental Ethics*, *15*(2), 203–219. https://doi.org/10.1023/A:1015012403331

Tetlock, P. E., Kristel, O. V., Elson, S. B., Green, M. C., & Lerner, J. S. (2000). The psychology of the unthinkable: Taboo trade-offs, forbidden base rates, and heretical counterfactuals. *Journal of Personality and Social Psychology*, *78*, 853–870. https://doi.org/10.1037/0022-3514.78.5.853

Van der Meer, T., & Verhoeven, J. W. M. (2014). Emotional crisis communication. *Public Relations Review*, *40*, 526–536. https://doi.org/10.1016/j.pubrev.2014.03.004

Van Herzele, A., Aarts, N., & Casaer, J. (2015). Wildlife comeback in Flanders: Tracing the fault lines and dynamics of public debate. *European Journal of Wildlife Research*, *61*(4), 539–555. https://doi.org/10.1007/s10344-015-0925-5

Vaughan, E., & Seifert, M. (1992). Variability in the Framing of Risk Issues. *Journal of Social Issues*, *48*(4), 119–135. https://doi.org/10.1111/j.1540-4560.1992.tb01948.x

Weatherall, A., & Stubbe, M. (2015). Emotions in action: Telephone-mediated dispute resolution. *British Journal of Social Psychology*, *54*(2), 273–290. https://doi.org/10.1111/bjso.12082

Weicht, B. (2008). The morality of caring: The discursive construction of informal care. *Enquire*, *1*(2), 1–27.

Wondolleck, J. M., Gray, B., & Bryan, T. (2003). Us versus them: How identities and characterizations influence conflict. *Environmental Practice*, *5*(3), 207–213. https://doi.org/10.1017/S1466046603035592

Tim M. Stevens is an interdisciplinary scientist with expertise in digital media research, working at *Communication, Philosophy and Technology (CPT), Wageningen University & Research*. He studies the

interactions between social media activity and stakeholders' communication and policy practices in the domains: agriculture, food & health, and nature & environment. For his PhD on Social *Media Dynamics in Argo-Food Governance*, he combined computational methods on macro-level (e.g. semantic and social network analysis) with interpretive methods on micro-level (e.g. framing and policy analyses).

Noelle Aarts is professor Socio-Ecological Interactions at the Institute for Science in Society (ISiS) at the Radboud University In Nijmegen. Focusing on conversations between people, she studies inter-human processes and communication for creating space for sustainable change. She has published on several topics such as frame construction in interaction about life science issues, conflict and negotiation in the domain of nature policies and land use planning, dealing with ambiguity, dilemmas and ambivalence, network-building and self-organization for regional innovation and multi-functional landuse and on dialogue between people who fundamentally differ. Noelle Aarts is one of the directors of the 'Centrum voor Dialogue' (CVD).

Art Dewulf is professor of sensemaking and decision-making in policy processes at the Public Administration and Policy group, Wageningen University & Research. He studies complex problems of natural resource governance with a focus on interactive processes of sensemaking and decision-making in water and climate governance.

negotiation and conflict management research

Negotiation and Conflict Management Research

When Asking "What" and "How" Helps You Win: Mimicry of Interrogative Terms Facilitates Successful Online Negotiations

Kate Muir,[1] Adam Joinson,[1] Emily Collins,[1,*] Rachel Cotterill[2] and Nigel Dewdney[2,†]

1 Applied Digital Behaviour Lab, School of Management, University of Bath, Bath, UK
2 Department of Computer Science, University of Sheffield, Sheffield, UK
* Human Factors Excellence (HuFEx), School of Psychology, Cardiff University, Cardiff, CF10 3AT, UK
† School of Management, University of Bath, Bath, BA2 7AY, UK

Keywords
language style matching, linguistic style, negotiations, interpersonal impressions, rapport, question asking, mimicry.

Correspondence
Kate Muir, School of Sciences, Bath Spa University, Newton Park, Newton St Loe, Bath BA2 9BN, UK; e-mail: k.muir@bathspa.ac.uk.

doi: 10.34891/462f-w824

Abstract

Strategic word mimicry during negotiations facilitates better outcomes. We explore mimicry of specific word categories and perceptions of rapport, trust, and liking as underlying mechanisms. Dyads took part in an online negotiation exercise in which word mimicry was manipulated: Participants were instructed to mimic each other's words (both-mimic), one participant mimicked the other (half-mimic), or neither participant mimicked (neither-mimic). When given a simple instruction to mimic their partner, participants mimicked both the style (personal pronouns, adverbs, linguistic style, interrogative terms) and the content (affiliation terms, power terms, and assents) of their partner's messages. Mimicry was associated with greater joint and individual points gain and perceptions of rapport from the mimicked partner. Further, mimicry of interrogative terms (e.g., how, why) mediated positive effects of mimicry upon negotiation outcomes, suggesting the coordination of question asking between negotiators is an important strategy to create beneficial interactions and add value in negotiations.

Negotiations are an often contentious and unpredictable communicative situation, involving distribution of limited resources, between negotiators with mutually exclusive goals. Negotiations can be described as a "process whereby differing perspectives on outcomes exist amongst negotiators, so there are obstacles to reaching an agreement" (Bayram & Ta, 2018, p. 27). Further, negotiators often expect distrust and competition (Fisher, Ury, & Patton, 1991). Establishing a positive relationship, including feelings of trust and rapport between negotiating partners, is thus an important step toward successful outcomes (Nadler, 2004). Mimicry, the imitation of verbal and nonverbal behaviors, has been linked to positive perceptions of the mimicker from the mimicked (Chartrand, Maddux, & Lakin, 2005) and positive outcomes of negotiations for both the mimicker and the mimicked (Maddux, Mullen, & Galinsky, 2008). Thus, mimicry is one way in which negotiators can establish a positive relationship, even in short time frames, and achieve a successful negotiation outcome.

How does mimicry facilitate negotiations? Previous research has examined the development of trust between negotiators as a promising mediator of the effects of mimicry upon negotiation outcomes

(Maddux et al., 2008; Swaab, Maddux, & Sinaceur, 2011). In this study, we extend this line of research by exploring two potential mechanisms underlying the positive effects of verbal mimicry upon negotiation outcomes: mimicry of specific word types, and enhanced perceptions of trust, rapport, and liking from the mimicked party toward the mimicker. We highlight the role of mimicry of interrogative terms as a previously unexplored mediator. Further, we suggest that contextual factors relating to the negotiation situation may be an important influence upon the underlying mechanisms through which verbal mimicry exerts beneficial effects upon negotiation outcomes.

Verbal Mimicry and Negotiation Outcomes

There is a long history in the study of mimicry, that is, the imitation, copying, or similarity in nonverbal and verbal behaviors between conversationalists (Chartrand & Lakin, 2013), and for good reason. Mimicry seems to be a ubiquitous part of human communication (Chartrand, Maddux, & Lakin, 2005), and under most circumstances, it is associated with positive outcomes. These include increased likelihood of prosocial behavior being performed by the mimicked (van Baaren, Holland, Kawakami, & van Knippenberg, 2004), greater liking and rapport felt by the mimicked toward the mimicker (Guéguen, 2009), and greater tips gained by a mimicking waitress (Jacob, Gueguen, Martin, & Boulbry, 2011).

In terms of mimicry and negotiations, behavioral mimicry is associated with successful outcomes. The outcomes of a negotiation can be characterized as successful in several ways. One way is recording whether a deal is reached within the allocated negotiation time period which is acceptable to all parties. Alternatively, some negotiation exercises (e.g., New Recruit: Neale, 1997) quantify negotiation outcomes using a points system, measuring the number of points gained at the end of the negotiation by the dyad as a whole (joint points) or by each individual in the negotiation (individual points). Maddux et al. (2008) found that when individuals purposefully imitated the behavioral mannerisms of their conversational partner during face-to-face negotiations, they achieved better negotiation outcomes. These outcomes included reaching an acceptable deal (study 2) and increased joint and individual points gain (study 1), compared with negotiations in which neither partner mimicked. Further, the mimicker gained more individual points compared with the mimicked, showing a clear advantage of mimicking in terms of gaining more points in the negotiation (study 1).

In this study, we are particularly interested in verbal mimicry, in which negotiators mimic individual words, expressions, or entire phrases used by their partner. Where negotiations take place online or in otherwise computer-mediated environments, harnessing the positive effects of behavioral mimicry can be difficult given the more limited nature of nonverbal cues (Swaab, Maddux, & Sinaceur, 2011). In these circumstances, where nonverbal cues are limited, negotiators may be more likely to perform verbal mimicry, by mimicking the language, sentences, or words their partner uses during the negotiation (Scissors et al., 2009).

Just like behavioral mimicry, verbal mimicry has been associated with better outcomes of online negotiations, both in terms of reaching an agreement (Huffaker, Swaab, & Diermeier, 2011) and in terms of individual points gain (Swaab et al., 2011). Verbal mimicry also leads to positive outcomes in situations outside of negotiations. For instance, mimicking the words used by a partner during face-to-face interactions has shown to increase compliance rates with requests for money (Fischer-Lokou, Guegen, Lamy, Martin, & Bullock, 2014). Thus, mimicking the language of one's negotiation partner during computer-mediated negotiations could be a useful strategy in the negotiator's toolbox.

Communication accommodation theory (CAT: Dragojevic, Gasiorek, & Giles, 2016) offers a theoretical explanation for how verbal mimicry facilitates negotiation outcomes. CAT describes how people adjust elements of their communication, both verbal and nonverbal, to be more like (termed convergence) or less like (termed divergence) their conversational partner, or a group. This process can occur along several dimensions including nonverbal behavior (such as gestures), accent, tone of voice, and topic choice, down to the level of specific words used. Convergence can be goal-driven: Communication

will be adjusted to be more like another individual or group when the goal is to affiliate or appear more alike, and the opposite when trying to emphasize differences or appear dissimilar. For instance, having a goal to affiliate with a conversational partner increases behavioral mimicry (Lakin & Chartrand, 2003). Communicative goals can also be to facilitate understanding, as in when individuals adjust the complexity of the topics they discuss or use similar terminology. Further, when convergence in communication is perceived by the recipient as appropriate to the situation or conversational context, it fosters positive feelings between conversationalists, including trust, rapport, and liking (Dragojevic et al., 2016). Thus, CAT predicts that if verbal mimicry during a negotiation is perceived as appropriate to the situation (as opposed to patronizing, for example), this could result in better understanding of the topics under discussion or enhanced perceptions of trust, rapport, and liking between negotiators. In turn, this could facilitate more optimal negotiation outcomes for one or both parties.

Mediating Mechanism: Mimicry of Specific Word Types

We propose that one explanation for the beneficial effects of verbal mimicry upon negotiation outcomes is via the mimicry of *specific* word types. CAT (Giles, 2016) suggests that perceived appropriateness by the mimicked partner influences whether mimicry is received positively or not (Dragojevic et al., 2016). It is therefore possible that mimicry of *some* word types in negotiations is perceived as appropriate, and linked to positive negotiation outcomes, but not others. For example, mimicking words that aid clarification of negotiation processes and outcomes (e.g., financial or cognitive processing terms such as *think, know*) could be perceived as appropriate, whereas mimicry of negative emotion terms (e.g., angry, sad) could not be. In this way, rather than *all* verbal mimicry being beneficial to negotiation outcomes, it could matter *which* words are mimicked. In other words, the effects of verbal mimicry upon negotiation outcomes may be mediated through the mimicry of specific word types.

Firstly, function words are a promising category of words which could mediate the effects of word mimicry. Function words are those that do not have any meaning in themselves but are used to "stitch together" the content within a sentence. For example, in the sentence "You'll be happy to know I've decided to take the offer," the words *happy*, *know*, *decided*, *take,* and *offer* are content, conveying meaning. The other words are function words without any intrinsic meaning, which act to relay relationships between the content. Linguistic style matching (LSM) refers to the extent to which conversation partners use similar proportions of function words in their speech. Some research suggests that high levels of LSM (i.e., negotiators mimicking each other's use of function words) are linked to positive outcomes of negotiations. Richardson, Taylor, Snook, Conchie, and Bennell (2014) reported higher levels of linguistic style matching between police interrogators and suspects were associated with greater success in these negotiations, in terms of higher rates of confessions, compared with lower levels of LSM which were associated with lower rates of confessions. Similarly, where presidential candidates matched their opponent's linguistic style in debates, this was associated with improved polling numbers (Romero, Swaab, Uzzi, & Galinsky, 2015).

However, the evidence as to the usefulness of linguistic style matching in facilitating successful negotiations is mixed, as LSM does not always predict positive negotiation outcomes. Richardson, McCulloch, Taylor, and Wall (2018) found that verbal mimicry only predicted negotiation success (in terms of coming to an agreement) when dyads negotiated face to face under conditions of symmetric power, but not asymmetric power (e.g., one member had more power in the negotiation than their partner: study 1). Further, Ireland and Henderson (2014) discovered that the extent of LSM in the messages of dyads negotiating using an instant messaging program *negatively* predicted the likelihood of an agreement being reached within the allotted negotiating time. Thus, although mimicry of function words could be a word category that mediates the effects of word mimicry in negotiations, the evidence is currently mixed, and the role of LSM needs further clarification.

Turning to message content, the evidence is equally mixed about potential mediating word categories. Firstly, matching of *positive emotional language* (e.g., terms such as *happy*, *joyful*) between negotiators has been associated with positive outcomes of negotiations in terms of more agreements (Bayram & Ta, 2018; Ireland & Henderson, 2014; Taylor & Thomas, 2008), trust between negotiators, and individual points gain (Scissors, Gill, Geraghty, & Gergle, 2009; Swaab et al., 2011), but these effects have not always been reliable (Huffaker et al., 2011; Scissors et al., 2009). Positive outcomes of negotiations in terms of agreements or points gain have also been associated with matching in *assent* terms (words such as *yes*, *agree*: Huffaker et al., 2011; Swaab et al., 2011), use of the *present* and *future* tense (Bayram & Ta, 2018; Scissors et al., 2009; Taylor & Thomas, 2008), and words indicating *cognitive processing* such as *insight* and *causation* terms (Bayram & Ta, 2018). These results could suggest that, in line with CAT, where negotiators match each other's use of these word types, this aids understanding and helps conversationalists to better negotiate deals for one or both parties (Dragojevic et al., 2016).

Yet, the picture is complicated. Matching in some word categories either *does not* predict or can be detrimental to successful outcomes of negotiations, including matching in *negative emotion* terms such as *angry* or *sad* (Bayram & Ta, 2018; Huffaker et al., 2011; Scissors et al., 2009; Swaab et al., 2011; Taylor & Thomas, 2008), the use of the *past tense* (Taylor & Thomas, 2008), and some *cognitive processing* terms such as *discrepancies* and *differentiation* (Bayram & Ta, 2018), and *certainty* and *exclusivity* terms (Taylor & Thomas, 2008).

Taking these studies together, the *type* of words that are mimicked seem to be critical to the success of word mimicry as a negotiation strategy, pointing to mimicry of only certain types of words as a potential mediator. However, the literature on the effectiveness of linguistic style matching in negotiations is mixed, and some promising effects of content matching in negotiations have been observed in only a limited number of studies (Bayram & Ta, 2018; Ireland & Henderson, 2014; Scissors et al., 2009; Swaab et al., 2011; Taylor & Thomas, 2008). Thus, there is not a consistent picture about the types of words that could act as a mediator of the effects of verbal mimicry. This is important because understanding the effectiveness of mimicry of different word categories will highlight how best to harness the power of word-level mimicry in negotiations, by only mimicking those word categories which have evidenced positive effects. Therefore, in the present study we explore matching in linguistic style, alongside a variety of content terms (including those word categories that have been identified in previous research: positive emotion terms, assent terms, past, present and future tense terms, and cognitive processing terms), as mediators of the effects of verbal mimicry in online negotiations.

Mediating Mechanism: Interpersonal Perceptions of Trust, Rapport, and Liking

Alternatively, perceptions of trust, rapport, and liking felt by the mimicked toward the mimicker could act as a mediating mechanism for the effects of verbal mimicry. According to CAT, where conversationalists mimic the language use of their partner (termed "convergence" within CAT), this is generally perceived positively by the mimicked individual, in terms of how much the mimicked individual feels trust, rapport, and liking toward the mimicker (Dragojevic et al., 2016). These enhanced perceptions could help to build a positive working relationship between negotiators. Feasibly, when one negotiator mimics another, this develops feelings of trust and encourages effective communication between negotiators, allowing both parties to discover mutually beneficial priorities (Maddux et al., 2008). Using this knowledge, dyads can then achieve better deals for both negotiation partners in terms of greater joint points gain. For the mimicking individual, they can elicit useful information about their partner's priorities, and this knowledge can be exploited to claim added value for themselves, resulting in greater individual points gain. In both cases, the positive interpersonal feelings generated by mimicry facilitate information sharing which helps negotiating parties to create mutually acceptable agreements, instead of failing to come to an agreement or coming to an impasse (Maddux et al., 2008).

This idea already has some support in the literature. Firstly, *trust* between negotiating partners has already been shown to mediate the effects of behavioral mimicry upon negotiation outcomes (Maddux et al., 2008), and trust also mediated the effects of word mimicry upon online negotiation outcomes (Scissors et al., 2009; Swaab et al., 2011). Similarly, mimicry has also been shown to increase feelings of *rapport*, the subjective feeling that you are engaged with, coordinated with, and experiencing mutual positivity with your conversational partner (Tickle-Degnen & Rosenthal, 1990). Mimicry of function words by one individual toward another has been associated with greater perceptions of rapport between conversationalists (Muir, Joinson, Cotterill, & Dewdney, 2016). Behavioral mimicry has also resulted in increased *liking* of the mimicker by the mimicked (Guéguen, 2009). Further, greater feelings of rapport and liking can lead to better outcomes of negotiations. In one study, participants who took part in a prenegotiation "schmoozing" session, designed to let the negotiators get to know each other, reported greater positive feelings toward their negotiation partners and achieved better negotiation outcomes compared with participants who did not "schmooze" (Morris, Nadler, Kurtzberg, & Thompson, 2002).

Taking the previous literature together, it seems that the negotiation *context* is important in predicting the conditions under which verbal mimicry facilitates negotiation outcomes. Potentially, verbal mimicry could function to enhance trust, rapport, and liking, facilitating greater information sharing which leads to better negotiation outcomes, but only under certain circumstances. Such circumstances could be influenced by the type of relationship involved (e.g., romantic relationships vs. police interrogators and suspects), the communication medium (e.g., face-to-face vs. computer-mediated communication), or the power levels between negotiation partners (e.g., asymmetric vs. symmetric). Thus, the inconsistency in the literature points to a need for exploratory work to further clarify our understanding of the connections between verbal mimicry, LSM, interpersonal perceptions of the mimicker, and negotiation outcomes.

Present Study

We examined mimicry of specific word types and interpersonal perceptions of trust, rapport, and liking as mediating mechanisms behind the effects of verbal mimicry in negotiations. We utilized a simple mimicry manipulation within the context of an online negotiation exercise, with the following three experimental conditions: One participant instructed to mimic their partner's messages during the negotiation, while their partner did not receive any such instruction (half-mimic); neither participant received an instruction to mimic (neither-mimic); and both participants received an instruction to mimic the content of their partner's messages (both-mimic). This latter condition was to explore whether the effects of mimicry were cumulative—if both negotiators were mimicking each other, did this increase the effects beyond if only one partner mimicked? In this study, we focused on answering two main research questions: (a) Does a mimicry instruction result in better negotiation outcomes on the part of the mimicker or mimicked (individual points gain) and/or for the dyad (joint points gain)? (b) Are the effects of the mimicry instruction upon individual and joint points gain mediated through the mimicry of specific word types or through interpersonal perceptions of trust, rapport, or liking?

Method

Participants

A power analysis using G*Power (Faul, Erdfelder, Lang, & Buchner, 2007) suggested a total sample size of 76 participants, to yield 95% chance of detecting an effect size of $f = 0.42$ (relating to the difference in individual points gain between mimicker and mimicked: Maddux et al., 2008; Swaab et al., 2011). Eighty-four participants took part in the study (58 females, 24 males, 1 transgender, and 1 declined to say), with a mean age of 26 years ($SD = 9.75$). Participants were undergraduate and postgraduate

students. Twenty-eight participants were in the neither-mimic (control) condition, 28 participants were in the half-mimic condition, and 28 participants were in the both-mimic condition. Participants each received a small monetary reward at the end of the study as a token of thanks for their participation. Ethical approval for the study was granted by the School of Psychology Ethics Committee of the university in which the study took place.

Negotiation Exercise

For the negotiation exercise, we adapted the New Recruit exercise (Neale, 1997) which has been widely used in mimicry research (Maddux et al., 2008; Romero et al., 2015; Swaab et al., 2011). The exercise consists of a negotiation between a job candidate and recruiter, over terms of an employment offer extended to the candidate. The terms consisted of eight issues of concern (e.g., salary, bonus, job location), each with five options (e.g., bonus options range from 10% to 2%). Each option is worth a number of points to the recruiter and candidate, with higher number of points indicating a stronger preference. The aim for each individual is to gain the greatest possible number of points by the end of the negotiation period. Starting date and salary were distributive issues (the preferences of recruiter and candidate were in direct opposition), job assignment and location were compatible issues (preferences of recruiter and candidate were identical), and the remaining four issues were integrative: Bonus and moving expenses were more valued by the candidate than the recruiter, whereas vacation time and insurance plan were more valued by the recruiter than the candidate.

It is therefore possible for negotiation partners to create value and mutually beneficial deals, by conceding on issues which are of lower importance to them in exchange for the issues which are of high importance. However, they will only discover these areas of mutual interest by sharing information and cooperating with each other throughout the negotiation.

Mimicry Manipulation

Each participant received some "important instructions," which were included at the end of an instruction booklet detailing the negotiation task. The important instructions contained the mimicry manipulation. Participants instructed to mimic their partner received the following instructions (adapted from Maddux et al., 2008, and Swaab et al., 2011):

> Successful negotiators recommend that forming a good rapport and being on the "same wavelength" as your negotiation partner are key to getting a good deal. One way to achieve this is to mimic the general speaking style and language of your negotiation partner. Linguistic and verbal mimicking seems to facilitate online negotiations in particular.
>
> You should try to mimic the words your negotiation partner uses. For example, if the other person uses certain jargon, metaphors, grammar, specific words, or abbreviations (such as "y'know" for "you know") you should do the same. So, for instance, if your negotiation partner says "**can we agree on A for this one mate,**" you could reply "well **mate** that's worse for me but **we can agree on A for this one.**"
>
> It is important you do not tell your partner about the content of these important instructions, otherwise this technique completely backfires. Also, do not direct too much of your attention to this mimicking so you do not lose focus on the outcome of the negotiation. Thus, you should find a happy medium of consistent but subtle mimicking that does not disrupt your focus.

Participants who were not instructed to mimic (both participants in dyads in the neither-mimic condition, and the nonmimicking participant in the half-mimic condition) received the following control instructions:

> Successful negotiators recommend that focusing on the information in your negotiation plan and your best outcome is key to getting a good deal. One way to achieve this is to negotiate with this information always in the back of your mind. They say that this will help get you through the negotiations and get a good deal.

In the half-mimic condition, one participant received the mimicry instructions and their partner received the control instructions. The half mimicry condition was counterbalanced so that in seven pairs the recruiter mimicked, and the candidate did not (n = 14) and in seven pairs the candidate mimicked, and the recruiter did not (n = 14). In the neither-mimic condition, both participants received the control instructions. In the both-mimic condition, both participants received the mimicry instructions.

Procedure

Participants were recruited to the study in pairs and were unknown to each other prior to the study. The study took place in a computer laboratory, in which participants sat at individual workstations, separated by a screen. Upon arrival, participants were randomly allocated to the role of either job candidate or recruiter and given an instruction booklet containing a description of the negotiation task, their role within the negotiation, and the issues to be negotiated, along with the points values for each option. The negotiation instructions specified that the objective was to end the negotiation with the maximum number of points they could gain. The instruction booklets also included their "important instructions" (mimicry instruction or control instruction, depending on experimental condition).

Participants were given 15 min to read through their instruction booklets and privately prepare for the negotiation, including creating a negotiation plan which incorporated their "important instructions." At the end of the preparation period, participants then had 30 min to negotiate with their partner to reach an agreement. Participants used an online instant messaging program for the negotiation (www.hipchat.com). Participants entered an individual chat room where they could chat privately. The HipChat system automatically kept a secure transcript of all messages sent and received by users. These transcripts were only available for access by the administrative account owner (in this case, the first author) and were retrieved later for analysis.

At the end of the 30-min negotiation period, participants completed the following outcome measures.

Negotiation Outcomes: Individual and Joint Points

Immediately after the end of the 30-min negotiation period, participants in the recruiter role completed a "contract," detailing which option both parties agreed on, for each of the eight issues in the negotiation. Each option was worth a number of points to recruiter and candidate: For example, if both parties agreed on a bonus of 8%, this was worth 400 points to the recruiter and 3,000 points to the candidate, but if a bonus of 2% was agreed on, this was worth 1,600 points to the recruiter and zero points to the candidate. The points gained by the recruiter and candidate on each of the eight issues were summed to yield *individual points gain,* which could range from a possible −8,400 to 13,200 points. *Joint points gain* was calculated by summing the individual points gain for both members in a dyad.

Manipulation Check

After the recruiter completed the contract, participants completed a manipulation check to see whether participants had read and understood the mimicry manipulation. Participants were asked: "Can you recall the important instructions you received at the start of the negotiation? Please write here what the important instructions advised you to do during the negotiation." Participants also indicated the percentage of time they followed the instructions throughout the negotiation, from 0% to 100% of the time.

Interpersonal Perceptions

Participants completed a measure of subjective "clicking" or *rapport* felt during the interaction (Niederhoffer & Pennebaker, 2002: 3 items, $\alpha = .77$, $M = 13.98$, $SD = 3.88$). Participants were asked to what extent they felt the negotiation went smoothly, they were comfortable during the negotiation, and they truly got to know their negotiation partner, each on a scale from 1 (not at all) to 7 (very much). Responses to each item were summed to form a rapport score which could range from 3 to 21. Participants also completed a measure of *trust* and a measure of *liking*. Participants were asked "how much did you trust your conversational partner during the negotiation?" and "how much did you like negotiating with this person?" each on a scale from 1 (not at all) to 5 (very much).

Results

Manipulation Check

Of the 42 participants who were given instructions to mimic their partner, 69% (29 participants) recalled that their "important instructions" involved advice to mimic their negotiation partner and thus were judged to have recalled the mimicry instructions correctly. These participants reported mimicking for 54% of the time ($SD = 28.52$, range = 10–100%). These self-reported mimicry proportions are in line with other mimicry studies (32% and 42%: Maddux et al., 2008; 35% and 55%: Swaab et al., 2011). Of the 42 participants who were given the control instructions, 95% (40 participants) successfully recalled their instructions and reported following them for 74% of the time ($SD = 22.52$, range = 2–100%).

Which Word Categories Did Negotiators Mimic?

Negotiation transcripts were similar between dyad mimicry conditions in terms of number of messages exchanged, $F(2, 39) = 2.17$, $p = .13$, $\eta_p^2 = .10$ ($M_{\text{neither-mimic}} = 19.07$, $SD = 8.52$; $M_{\text{half-mimic}} = 24.85$, $SD = 9.06$; $M_{\text{both-mimic}} = 19.35$, $SD = 7.11$), and length as defined by word count, $F(2, 39) = 0.25$, $p = .78$, $\eta_p^2 = .001$ ($M_{\text{neither-mimic}} = 707.14$, $SD = 2.45$; $M_{\text{half-mimic}} = 655.50$, $SD = 253.18$; $M_{\text{both-mimic}} = 650.85$, $SD = 203.24$). Participants sent a similar number of messages whether they mimicked their negotiation partner or not, $t(82) = -.39$, $p = .69$ ($M_{\text{mimic}} = 20.83$, $SD = 8.16$; $M_{\text{not-mimic}} = 21.61$, $SD = 10.17$), and whether they were in the recruiter or candidate role, $t(82) = 0.91$, $p = .36$ ($M_{\text{recruiter}} = 22.14$, $SD = 10.23$; $M_{\text{candidate}} = 20.31$, $SD = 7.99$).

All dyads negotiated for the full 30 min, although ten dyads failed to come to a full agreement, instead making a partial agreement by agreeing on fewer than the full eight issues. There was no difference in the dyads who came to only a partial agreement on dyad mimicry condition, $x^2(2) = 4.20$, $p = .12$ (*half-mimic* = 2 dyads; *both-mimic* = 6 dyads; *neither-mimic* = 2 dyads), number of messages exchanged, $F(1, 40) = 2.28$, $p = .14$, $\eta_p^2 = .05$ ($M_{\text{partial}} = 17.60$, $SD = 6.55$; $M_{\text{full}} = 22.18$, $SD = 8.83$), or message length in terms of word count, $F(1, 40) = 0.14$, $p = .70$, $\eta_p^2 = .003$ ($M_{\text{partial}} = 695.80$, $SD = 270.35$; $M_{\text{full}} = 663.46$, $SD = 221.16$).

We next explored the characteristics of the negotiation transcripts in terms of the types of words that participants used, before calculating the extent to which participants matched each other in their use of these words per mimicry condition. We assumed that matching in the neither-mimic condition represented a "natural" level of matching, so purposeful mimicry would be evident in increased levels of matching in one or more word categories in the half-mimic or both-mimic conditions compared with the neither-mimic condition.

Word Use in Negotiation Transcripts

The transcripts of the negotiations were firstly separated out into two files, one for each participant containing their messages. These files were then processed using Linguistic Inquiry and Word Count

software (LIWC: Pennebaker, Booth, Boyd, & Francis, 2015) which yields the percentage to which words within a piece of text fall into a number of different word categories, such as positive emotions (e.g., happy), or work-related words (e.g., job). The LIWC software produces approximately 90 output variables for each processed piece of text (Pennebaker et al., 2015), covering a wide range of cognitive and emotional processes, personal concerns, and psychological drives alongside function word categories.

We firstly calculated the average percentage that each word category (yielded by LIWC) was present within the negotiation transcripts, giving us an approximation of the types of words that participants used in their negotiations (see column 3 in Table 1, below, labeled *percentage use*). Other studies using New Recruit report similar percentages (Elfenbein, Curhan, Eisenkraft, Shirako, & Brown, 2009; Romero et al., 2015).

Calculating Matching in Transcripts

The next stage of the analysis involved calculating the extent to which participants matched their conversational partner's use of each of these word categories. We used the percentages provided by LIWC to determine the extent of matching for each dyad, using the linguistic style matching (LSM) metric. The LSM metric measures the extent to which two conversationalists are matched in their use of a word category (or set of categories) across the whole conversation (Niederhoffer & Pennebaker, 2002). To calculate LSM, the absolute value of the difference in use of a word category between two speakers is divided by the total for each category. We used the following formula to calculate LSM for each word category (Ireland et al., 2011). Assents are used as an example category here.

$$\mathrm{LSM}_{\mathrm{assents}} = 1 - \left[\frac{|\mathrm{assents}_1 - \mathrm{assents}_2|}{\mathrm{assents}_1 + \mathrm{assents}_2 + 0.0001}\right]$$

In this formula, $\mathrm{assents}_1$ represents the percentage of assents used by speaker 1, and $\mathrm{assents}_2$ represents the percentage of assents used by speaker 2. To prevent empty sets in the formula (e.g., in potential cases where assents were not used by one or both speakers), 0.0001 is added to the denominator. This formula yields an LSM score for the word category for the dyad ranging between 0 and 1, with 1 representing complete matching in the use of this word category between the conversationalists.

We calculated an LSM score, using this formula, for each word category output by LIWC (as identified in Table 1). To keep our analysis comparable to other research into the effects of linguistic style in negotiations (Ireland & Henderson, 2014; Richardson et al., 2018; Richardson et al., 2014), we also calculated matching in *linguistic style.* This was achieved by calculating separate matching scores (using the above formula) for the nine word categories defined as representing linguistic style: adverbs, articles, auxiliary verbs, conjunctions, impersonal pronouns, negations, personal pronouns, prepositions, and quantifiers (Niederhoffer & Pennebaker, 2002). These were then averaged to yield a composite measure of matching in linguistic style. This score again ranges between 0 and 1, with higher scores representing greater matching in linguistic style between the two speakers.

Determining Purposeful Mimicry of Word Categories

To determine which word categories were purposefully mimicked, we tested whether levels of matching in each word category and in linguistic style differed between the dyad mimicry conditions (neither-mimic vs. half-mimic vs. both-mimic). For clarity, in the following analyses we present only significant results, although matching is presented for all word categories in Table 1 (see columns 4, 5, and 6 labeled *matching*). Levels of matching for the following word categories were highest in the both-mimic condition, followed by half-mimic, with the lowest levels of matching in the neither-mimic condition: affiliation terms, $F(2, 39) = 4.34$, $p = .02$, $\eta_p^2 = .18$; power terms, $F(2, 39) = 4.66$, $p = .01$, $\eta_p^2 = .19$; assent terms, $F(2, 39) = 11.97$, $p < .001$, $\eta_p^2 = .38$; interrogative terms, $F(2, 39) = 3.51$, $p = .04$, $\eta_p^2 = .15$; linguistic style, $F(2, 39) = 4.74$, $p = .01$, $\eta_p^2 = .19$; personal pronouns, $F(2, 39) = 4.74$, $p = .01$, $\eta_p^2 = .31$; and adverbs, $F(2,$

Table 1
Mean Percentage Use of Word Categories in Negotiations and Levels of Matching in Word Categories for Both-Mimic, Half-Mimic, and Neither-Mimic Conditions

			Matching		
LIWC word category	Examples	Percentage use	Neither-mimic	Half-mimic	Both-mimic
Linguistic style[†,‡]			0.73 (0.08)	0.75 (0.09)	0.82 (0.06)
Function words	It, to	50.93 (6.21)	0.93 (0.04)	0.92 (0.05)	0.94 (0.03)
Pronouns	I, itself	16.11 (3.61)	0.86 (0.09)	0.88 (0.13)	0.89 (0.06)
Personal Pronouns[†,§]	Her, them	11.30 (2.92)	0.73 (0.11)	0.87 (0.12)	0.88 (0.08)
Impersonal Pronouns	It, those	4.79 (2.06)	0.72 (0.21)	0.76 (0.19)	0.77 (0.16)
Articles	An, the	4.73 (1.55)	0.84 (0.13)	0.76 (0.16)	0.87 (0.12)
Prepositions	To, with	11.71 (3.00)	0.81 (0.14)	0.89 (0.07)	0.86 (0.14)
Auxiliary verbs	Will, have	10.90 (2.68)	0.88 (0.11)	0.84 (0.11)	0.87 (0.10)
Adverbs[†,‡]	Very, really	5.21 (2.22)	0.69 (0.11)	0.72 (0.12)	0.83 (0.14)
Conjunctions	And, but	5.92 (1.70)	0.91 (0.05)	0.82 (0.13)	0.82 (0.13)
Negations	Not, never	0.81 (0.66)	0.64 (0.32)	0.52 (0.37)	0.64 (0.30)
Verbs	Eat, carry	18.11 (3.27)	0.88 (0.08)	0.88 (0.07)	0.90 (0.10)
Adjectives	Long, free	5.89 (2.85)	0.73 (0.18)	0.84 (0.12)	0.82 (0.15)
Compare	Greater, best	2.47 (1.31)	0.66 (0.22)	0.72 (0.26)	0.69 (0.25)
Interrogatives[†,§]	How, when	1.68 (1.28)	0.51 (0.28)	0.67 (0.19)	0.75 (0.24)
Numbers	Second, three	1.87 (2.58)	0.54 (0.40)	0.44 (0.42)	0.59 (0.36)
Quantifiers	Few, many	1.44 (0.82)	0.66 (0.72)	0.57 (0.31)	0.63 (0.28)
Affective Processes	Happy, sad	11.98 (4.80)	0.78 (0.14)	0.83 (0.13)	0.72 (0.12)
Positive Emotion	Love, nice	11.18 (4.89)	0.77 (0.16)	0.79 (0.13)	0.70 (0.11)
Negative Emotion	Hurt, nasty	0.63 (0.58)	0.54 (0.32)	0.62 (0.24)	0.46 (0.24)
Anxiety	Worry, fear	0.15 (0.25)	0.73 (0.40)	0.66 (0.47)	0.55 (0.49)
Anger	Hate, kill	0.004 (0.02)	0.00 (0.00)	0.00 (0.00)	0.00 (0.00)
Sadness	Cry, sad	0.32 (0.39)	0.48 (0.47)	0.50 (0.31)	0.50 (0.35)
Social Processes	Mate, they	11.76 (4.72)	0.70 (0.12)	0.76 (0.13)	0.80 (0.18)
Family	Dad, aunt	0.05 (0.20)	0.04 (0.09)	0.02 (0.00)	0.05 (0.06)
Friends	Buddy, mate	0.23 (0.32)	0.30 (0.41)	0.29 (0.39)	0.34 (0.40)
Female	Girl, her	0.003 (0.02)	0.00 (0.00)	0.00 (0.00)	0.00 (0.00)
Male	Boy, his	0.005 (0.02)	0.00 (0.00)	0.00 (0.00)	0.00 (0.00)
Cognitive Processes	Cause, know	11.74 (3.45)	0.87 (0.08)	0.80 (0.12)	0.85 (0.10)
Insight	Think, know	2.15 (1.29)	0.66 (0.24)	0.67 (0.18)	0.66 (0.25)
Causation	Because, effect	1.15 (1.00)	0.58 (0.28)	0.67 (0.28)	0.53 (0.21)
Discrepancies	Should, would	3.90 (1.71)	0.76 (0.14)	0.74 (0.21)	0.81 (0.10)
Tentative	Maybe, perhaps	2.40 (1.20)	0.71 (0.22)	0.69 (0.25)	0.66 (0.19)
Certainty	Always, never	1.41 (1.95)	0.63 (0.24)	0.33 (0.31)	0.43 (0.34)
Differentiation	But, else	2.95 (1.35)	0.72 (0.17)	0.74 (0.17)	0.67 (0.18)
Perceptual Processes	Look, heard	1.38 (1.37)	0.43 (0.36)	0.42 (0.34)	0.63 (0.21)
See	View, saw	0.41 (0.66)	0.40 (0.46)	0.27 (0.43)	0.41 (0.42)
Hear	Listen, hear	0.65 (0.08)	0.52 (0.41)	0.41 (0.44)	0.37 (0.40)
Feel	Feel, touch	0.19 (0.27)	0.18 (0.39)	0.59 (0.37)	0.62 (0.51)
Drives		12.35 (4.40)	0.78 (0.14)	0.83 (0.12)	0.89 (0.09)
Achievement	Win, success	3.64 (2.04)	0.71 (0.21)	0.75 (0.19)	0.82 (0.16)
Affiliation[†,§]	Ally, friend	4.55 (2.93)	0.64 (0.17)	0.77 (0.17)	0.81 (0.09)
Power[†,§]	Superior, bully	1.47 (0.90)	0.52 (0.24)	0.69 (0.13)	0.73 (0.19)
Reward	Take, prize	3.84 (2.47)	0.68 (0.24)	0.77 (0.19)	0.74 (0.19)
Risk	Danger, doubt	0.59 (0.50)	0.70 (0.33)	0.61 (0.27)	0.57 (0.41)
FocusPast	Ago, did	1.17 (0.96)	0.69 (0.29)	0.54 (0.30)	0.67 (0.27)
FocusPresent	Today, now	13.95 (3.18)	0.89 (0.10)	0.86 (0.07)	0.87 (0.07)

Table 1
(continued)

			Matching		
LIWC word category	Examples	Percentage use	Neither-mimic	Half-mimic	Both-mimic
FocusFuture	May, will	2.33 (1.22)	0.60 (0.25)	0.72 (0.24)	0.73 (0.17)
Relativity	Area, exit	12.99 (3.35)	0.88 (0.09)	0.88 (0.08)	0.84 (0.10)
Motion	Arrive, go	1.54 (0.86)	0.81 (0.20)	0.71 (0.28)	0.68 (0.22)
Space	Down, in	5.44 (1.99)	0.75 (0.18)	0.83 (0.16)	0.73 (0.18)
Time	End, until	6.22 (2.50)	0.84 (0.10)	0.83 (0.10)	0.85 (0.09)
Work	Job, majors	4.55 (3.01)	0.73 (0.21)	0.65 (0.32)	0.78 (0.16)
Money	Cash, owe	3.45 (1.62)	0.77 (0.12)	0.79 (0.17)	0.75 (0.17)
Leisure	Cook, movie	0.87 (0.68)	0.62 (0.29)	0.57 (0.31)	0.68 (0.36)
Home	Kitchen	0.10 (0.27)	0.44 (0.49)	0.70 (0.48)	0.62 (0.51)
Religion	Altar, church	0.008 (0.04)	0.00 (0.00)	0.00 (0.00)	0.00 (0.00)
Death	Coffin, kill	0.00 (0.00)	0.00 (0.00)	0.00 (0.00)	0.00 (0.00)
Biological Processes	Eat, pain	0.79 (0.68)	0.45 (0.34)	0.68 (0.34)	0.61 (0.40)
Body	Hands, cheek	0.22 (0.44)	0.79 (0.35)	0.49 (0.44)	0.77 (0.37)
Health	Flu, pill	0.52 (0.47)	0.57 (0.40)	0.51 (0.35)	0.51 (0.44)
Sexual	Love, sex	0.003 (0.002)	0.00 (0.00)	0.00 (0.00)	0.00 (0.00)
Ingestion	Eat, pizza	0.004 (0.002)	0.00 (0.00)	0.00 (0.00)	0.00 (0.00)
Informal Language		5.22 (4.57)	0.47 (0.26)	0.62 (0.69)	0.70 (0.24)
Assent[†,‡,§]	Agree, OK	4.13 (4.22)	0.33 (0.29)	0.57 (0.21)	0.76 (0.17)
Swear	Damn, shit	0.00 (0.00)	0.00 (0.00)	0.00 (0.00)	0.00 (0.00)
Netspeak	Lol, btw	0.76 (0.57)	0.58 (0.34)	0.45 (0.43)	0.35 (0.42)
Nonfluencies	Er, umm	0.35 (0.52)	0.58 (0.50)	0.24 (0.36)	0.54 (0.46)
Filler	Imean, youknow	0.01 (0.06)	0.42 (0.34)	0.52 (0.42)	0.48 (0.36)

Note. Word categories and examples taken from Pennebaker et al. (2015). Higher values of matching indicate greater similarity in word use between partners, with values of 1 indicating perfect matching in percentage use of word category between negotiation partners. Standard deviations presented in brackets. Linguistic style is a composite measure of nine categories of function words (adverbs, articles, auxiliary verbs, conjunctions, impersonal pronouns, negations, personal pronouns, prepositions, and quantifiers).

[†]Matching is significantly greater for the both-mimic compared with neither-mimic condition.

[‡]Matching is significantly greater for the both-mimic compared with the half-mimic condition.

[§]Matching is significantly greater for the half-mimic compared with neither-mimic condition.

39) = 4.20, $p = .02$, $\eta_p^2 = .17$. This suggests that these categories were the ones that participants purposefully mimicked, over and above natural levels of matching.

The Effects of Mimicry on Joint and Individual Points Gain

Following other studies using the New Recruit exercise, we removed the dyads who failed to reach an agreement within the allotted time, in terms of dyads who agreed on fewer than the full eight issues in the negotiation (Curhan & Pentland, 2007). This left 12 pairs in the neither-mimic condition, 10 pairs in the half-mimic condition (5 pairs where the recruiter mimicked and 5 pairs where the candidate mimicked), and 10 pairs in the both-mimic condition.

Joint points gain was calculated by summing the individual points gain for each dyad. Dyads in the both-mimic condition gained the most points, $F(2, 28) = 9.59$, $p < .001$, $\eta_p^2 = .24$ ($M = 10{,}800.00$, $SD = 2{,}469.51$), followed by dyads in the half-mimic condition ($M = 9{,}050.00$, $SD = 2{,}155.65$), with dyads in the neither-mimic condition gaining the lowest number of joint points ($M = 6{,}909.09$, $SD = 2{,}719.89$). We then explored where this advantage in joint points gain originated by examining the

mimicry manipulation's effects upon individual points gain, for example, did participants who mimicked gain more points individually? The answer is yes: Individuals gained more points at the end of the negotiation if they mimicked their partner, $F(1, 61) = 3.89$, $p = .05$, $\eta_p^2 = .08$ ($M = 5{,}040.00$, $SD = 2{,}542.00$), compared with if they did not mimic their partner ($M = 3{,}628.12$, $SD = 2{,}959.42$), and if they were in the candidate role compared with recruiter role, $F(1, 61) = 8.81$, $p = .004$, $\eta_p^2 = .15$ ($M_{\text{candidate}} = 5{,}415.00$, $SD = 2{,}612.01$; $M_{\text{recruiter}} = 3{,}357.27$, $SD = 2{,}868.13$).

Which Word Categories Were the Most Effective to Mimic?

To preserve clarity and space, in the analyses that follow we present significant effects only. We examined whether the effects of mimicry upon points gain were mediated through the matching of particular word categories. Matching is a dyad-level variable, so we focused this analysis upon joint points gain as this is also a dyad-level variable (unlike individual points gain). We firstly predicted joint points gain from the word categories that showed increased matching in the half- and both-mimic compared with neither-mimic conditions (*affiliation, power, assent, personal pronouns, adverbs, interrogatives, and linguistic style*), and thus could be assumed were the word categories that participants purposefully mimicked. With increased matching in *assent* terms and *interrogative* terms, there was an increase in joint points gain, *assent* $F(1, 24) = 5.01$, $p = .03$, $\eta_p^2 = .12$; $\beta = .51$, and *interrogatives* $F(1, 24) = 4.04$, $p = .05$, $\eta_p^2 = .15$; $\beta = .19$. The rest of the word categories that showed increased matching in the half- and both-mimic compared with neither-mimic conditions did not predict joint points gain.

Given there was greater matching in assent and interrogative terms in the both-mimic and half-mimic compared with neither-mimic conditions, and in turn matching in assent and interrogative terms predicted joint points gain, we then explored whether this represented a significant mediation relationship. We used model 4 of the PROCESS macro for SPSS (Hayes, 2013) to test our mediation hypothesis. The PROCESS macro allowed us to test whether the effects of dyad mimicry condition (x) upon joint points gain (y) were mediated through matching of assent terms or interrogative terms (m). Bootstrapped 95% confidence intervals with 5,000 resamples confirmed that matching in interrogative terms mediated the effects of dyad mimicry condition on joint points gain ($\beta = .23$, boot $SE = .09$, bootstrap 95% CI [0.04, 0.44]). Dyads in the both-mimic and half-mimic conditions gained an increased number of points jointly at the end of the negotiation, via an increase in matching in interrogative terms in their negotiations. There were no other significant indirect effects. The direct effect of dyad mimicry condition (neither-mimic vs. half-mimic vs. both-mimic) on joint points was no longer significant, $t(31) = 0.10$, $p = .92$, 95% CI [−1,102.60, 1,216.54], $b = 56.97$, $SE = 565.12$, suggesting full mediation by interrogative terms.

We also examined whether matching in the mimicked word categories (affiliation, power, assents, personal pronouns, adverbs, interrogatives, and linguistic style) predicted interpersonal perceptions. Given that matching is a dyad-level variable, we computed shared interpersonal impressions for each dyad (average ratings per dyad of rapport, trust, and liking) and predicted these from matching in a multivariate ANOVA. However, there were no significant effects, so we refrain from discussing this analysis further.

Were the Effects of Mimicry Mediated Through Interpersonal Impressions of Rapport, Trust, and Liking?

In this section, we explored whether an individual's mimicry (or not) influenced the interpersonal perceptions (rapport, trust, and liking) formed by their partner, and whether these ratings mediated the effects of the mimicry manipulation upon individual points gain. Again, for clarity we present significant effects only. A multivariate ANOVA on the ratings of rapport, trust, and liking with individual mimicry condition (mimicker rating their nonmimicking partner [*half-mimic condition*], nonmimicker rating their mimicking partner [*half-mimic condition*], both mimicking partners rating each other [*both-mimic condition*], and both nonmimicking partners rating each other [*neither-mimic condition*]) as the

Table 2
Mean Ratings of Rapport, Trust, and Liking per Mimicry Condition

	Mimicry condition			
Interpersonal perception	Mimicked rating mimicker (half-mimic)	Mimicker rating mimicked (half-mimic)	Mimicker rating mimicker (both-mimic)	Control rating control (neither-mimic)
Rapport	16.80 (1.30)*	14.60 (4.16)	15.60 (2.91)*	12.27 (2.83)
Trust	4.00 (0.01)	3.80 (0.83)	3.20 (0.91)	2.91 (1.10)
Liking	4.60 (0.54)	3.80 (0.83)	4.00 (0.81)	3.27 (0.90)

Note. Standard deviations in brackets.
*Significantly greater than ratings in the neither-mimic condition at $p < .05$.

independent variables revealed significant effects of mimicry condition for rapport, $F(2, 80) = 3.23$, $p = .03$, $\eta_p^2 = .11$, but not liking, $F(2, 80) = 1.02$, $p = .43$, $\eta_p^2 = .03$, or trust, $F(2,80) = 1.05$, $p = .37$, $\eta_p^2 = .04$. Table 2 shows that ratings of rapport were higher where the mimicked participant rated the mimicker, and where both participants were mimicking, compared with where no participants mimicked. Clearly, mimicking was associated with enhanced perceptions of rapport.

We next explored whether these interpersonal perceptions predicted individual points gain. We predicted individual points gain from the ratings of rapport, trust, and liking made by that participant's negotiation partner (i.e., predicting points gain for Person A from the ratings made by Person B), controlling for the direct effects of Person A's mimicry condition (mimic vs. not mimic) upon their individual points gain. Partner-rated liking positively predicted individual points gain, $F(1, 61) = 6.96$, $p = .01$, $\eta_p^2 = .11$, $\beta = .38$, but partner-rated rapport, $F(1, 61) = 3.03$, $p = .08$, $\eta_p^2 = .05$, $\beta = .19$, and partner-rated trust, $F(1, 61) = 0.38$, $p = .54$, $\eta_p^2 = .007$, $\beta = -.21$, did not predict individual points gain.

We again used model 4 of the PROCESS macro for SPSS (Hayes, 2013) to test for any mediation of the effects of mimicry condition (x) upon individual points gain (y) via interpersonal perceptions of rapport, trust, or liking (m). However, none of the indirect effects were significant and the direct effect of mimicry condition (mimic vs. not mimic) on individual points gain remained significant, $b = -1{,}554.94$, $SE = 758.22$, $t(31) = -2.05$, $p = .05$, 95% CI [−3,073.85, −36.02].

Discussion

We add to the body of research showing that mimicry facilitates negotiations (Maddux et al., 2008; Swaab et al., 2011). Our results are clear: Mimicry was a beneficial strategy in terms of more points gained by mimickers, and higher ratings of rapport made about the mimicker by the mimicked. Further, we found that it was mimicry of a specific word type that was the mediating mechanism underlying the effects of mimicry, in terms of increased joint points gain. Our results suggest that mimicry of *interrogative* terms could be of importance in facilitating negotiations.

Mimicking each other's use of question forms within the negotiation context (e.g., *What* do you think? *How* should we do this? *Why* do you want that?) could encourage greater information sharing, which is associated with more effective deals for dyads as a whole (Maddux et al., 2008). This is referred to as "value creating"; by sharing information about the issues which are most important to them, dyads can create deals that benefit both parties. Indeed, asking questions has been associated with better performance in negotiations (Elfenbein et al., 2009). Increasing the use of question phrases via the mimicry of interrogative terms allows negotiators to focus on what is important in the negotiation, to discover shared priorities, and clarify areas of mutual interest, therefore allowing dyads to create value. Theoretically, mimicking interrogative terms could serve to increase understanding between negotiation partners, in line with functions of accommodation within CAT (Dragojevic et al., 2016).

Interestingly, we did not find any effects of linguistic style matching (LSM) upon the outcome of the negotiation, in contrast to previous research (Richardson et al., 2018; Richardson et al., 2014; Taylor & Thomas, 2008). There is an argument that LSM reflects the extent to which conversationalists are paying attention or engaged socially with each other (Niederhoffer & Pennebaker, 2002). Thus, depending on the context, LSM can be evident in both positively and negatively emotionally toned interactions (Bowen, Winczewski, & Collins, 2017). Our results are therefore in line with this interpretation and suggest that LSM is not guaranteed to have an enhancing effect upon negotiation outcomes.

We also noted that participants in the half- and both-mimic conditions showed an increased level of matching (compared with the neither-mimic condition) along *several* dimensions of language, both content- and style-related. Further, examining levels of matching in the neither-mimic condition indicates that some dimensions of language (e.g., total function words) were matched to a high level in the negotiations regardless of whether participants were told to mimic or not. Thus, consistent with the interactive alignment model of language coordination (IAM: Garrod & Pickering, 2004) our results suggest that coordination along several dimensions of language occurs automatically as conversations unfold, as a natural and necessary part of conversation. Notably, though, we can increase these "natural" levels of matching through strategic mimicry, in order to enhance understanding and thus the chances of securing positive negotiation outcomes.

In line with predictions from CAT, mimicry enhanced perceptions of rapport. However, neither rapport, trust, nor liking mediated the effects of mimicry. This could suggest that the *context* and *nature* of the negotiation is an important element influencing which mechanisms and processes emerge as mediators of the effects of verbal mimicry. Potentially, interpersonal variables could have emerged as mediators in a different negotiation context. For instance, Maddux et al. (2008) found that trust (but not rapport or liking) mediated the effects of behavioral mimicry upon negotiation outcomes in a complex, multi-issue negotiation scenario in which success was predicated on negotiators sharing sensitive information. It is perhaps not surprising that trust was a mediator of the effects of mimicry in this negotiation context. In contrast, in the New Recruit negotiation exercise (Neale, 1997), perhaps success was less dependent on the formation of a positive relationship between negotiators and more on efficient sharing of relevant information. In this case, shared understanding was an important influence on negotiation success, which was facilitated by mimicry of interrogative terms. This interpretation suggests that the mediating mechanisms underlying the success of verbal mimicry as a negotiation strategy depend on the negotiation context, complexity, and interpersonal dynamics of the situation.

It is possible that mentioning the use of mimicry in order to form a rapport in our mimicry instructions could have induced a more interpersonal focus in the mimicry condition, compared with a task-based focus in the control condition. Potentially then, the mimicry instructions could have changed other aspects of participants' communication, in order to form a rapport, which we did not capture. However, we do not believe that this possibility accounts for our results. Firstly, in our manipulation check, participants who recalled their prenegotiation "important instructions" remembered being instructed to mimic the words of their partner, but no participants mentioned the formation of rapport as a goal. Secondly, if our instructions *did* induce an interpersonal focus, this would have been evident in a mediating effect of either affiliation terms, or in partner-rated rapport upon the effects of the mimicry instructions on points gain. Finally, there is evidence that instructing people to mimic changes the mimicker's self-view to be more defined in terms of their relation to others (Redeker, Stel, & Mastop, 2011). This means that even without an explicit instruction to form rapport via mimicry, giving people an instruction to mimic may, in and of itself, unintentionally encourage an interpersonal focus. Disentangling these explanations for the effects of mimicry upon negotiation outcomes would be an interesting direction for future research.

The *timing* of mimicry also forms an interesting direction for future research. For instance, it is possible there is a time lag between a word and phrase being uttered and it being mimicked by a negotiation partner. In order to capture such temporal elements of mimicry, in future research turn-by-turn LSM

(Niederhoffer & Pennebaker, 2002) could be utilized. This measure calculates the correlation in the use of a word category between Person A and Person B, lagged by one or more turns. Using this measure could illustrate the temporal dynamics of mimicry.

Limitations and Future Directions

Our work has some limitations and suggests several directions for future work. Given the exploratory nature of this study, we firstly would like to see our results replicated to ensure the observed effects are reliable. We also intend to pursue a more direct test and manipulation of the mimicry of interrogative terms in relation to negotiation outcomes, as to our knowledge we are the first study in the mimicry literature to find an effect for this word category.

We noticed that participants playing the candidate role gained more points than those in the recruiter role, regardless of whether they mimicked or were being mimicked. Previous research using this negotiation task has also noted this quirk (Maddux et al., 2008). Possibly, the job candidate role may be a more familiar social role, making it easier for participants to perform and succeed in the negotiation. Moreover, participants' prior negotiation experience could also have influenced their success in the negotiation task. In future research, we aim to collect and control for participants' previous experience with negotiation situations and to increase the variety of negotiation tasks used. Our results suggest that verbal mimicry helps in negotiations with multiple issues and potential trade-offs, with future research exploring whether this can be extended to different negotiation types such as those with a "no-win" situation for one or more partners.

We acknowledge that our lack of mediating effects for trust is surprising given previous findings in this area (Maddux et al., 2008; Swaab et al., 2011). Potentially, this could be accounted for by our single-item measure of trust, although previous research has reported mediating effects of trust using a single-item measure (Maddux et al., 2008). To increase the reliability of our results, we aim to address this in future research by using validated measures with multiple items (Swaab et al., 2011). Moreover, the short 15-min period participants were given to practice mimicking and prepare for the negotiation could also account for the lack of mediation effects for trust, liking, and rapport. Potentially, this short period was not sufficient for participants to become competent mimickers. This would limit the extent to which they performed mimicry during the negotiation and by extension, limit the effects of mimicry upon perceptions of trust, liking, and rapport. A longer, more in-depth training period in verbal mimicry would enable the full potential of mimicry's effects upon negotiation outcomes to be explored, both in terms of interpersonal perceptions and in terms of points gain. It is interesting to note, however, that participants were able to perform verbal mimicry after only a short preparation period, and when engaged in a challenging negotiation. This suggests that verbal mimicry has promise as a negotiation technique. We also suggest additional measures of how much mimicry took place would be beneficial. This could take the form of a content analysis of negotiation transcripts. Incorporating these aspects in future research will explore the best ways to utilize mimicry as a negotiation strategy.

References

Bayram, A. B., & Ta, V. P. (2018). Diplomatic chameleons: Language style matching and agreement in international diplomatic negotiations. *Negotiation and Conflict Management Research*, *12*(1), 23–40. https://doi.org/10.1111/ncmr.12142

Bowen, J. D., Winczewski, L. A., & Collins, N. L. (2017). Language style matching in romantic partners' conflict and support interactions. *Journal of Language and Social Psychology*, *36*(3), 263–286. https://doi.org/10.1177/0261927X16666308

Chartrand, T. L., & Lakin, J. L. (2013). The antecedents and consequences of human behavioral mimicry. *Annual Review of Psychology*, *64*, 285–308. https://doi.org/10.1146/annurev-psych-113011-143754

Chartrand, T. L., Maddux, W. W., & Lakin, J. L. (2005). Beyond the perception-behavior link: The ubiquitous utility and motivational moderators of nonconscious mimicry. In R. R. Hassin, J. S. Uleman, & J. A. Bargh (Eds.), *Oxford series in social cognition and social neuroscience. The new unconscious* (pp. 334–361). Oxford: Oxford University Press.

Curhan, J. R., & Pentland, A. (2007). Thin slices of negotiation: Predicting outcomes from conversational dynamics within the first 5 minutes. *Journal of Applied Psychology*, *92*(3), 80–811. https://doi.org/10.1037/0021-9010.92.3.802

Dragojevic, M., Gasiorek, J., & Giles, H. (2016). Communication accommodation theory. In C. R. Berger & M. L. Roloff (Eds.), *Encyclopedia of interpersonal communication* (pp. 176–196). Hoboken, NJ: Blackwell/Wiley.

Elfenbein, H. A., Curhan, J. R., Eisenkraft, N., Shirako, A., & Brown, A. D. (2009). Why are some negotiators better than others? Opening the black box of bargaining behaviors. *SSRN Electronic Journal*, https://doi.org/10.2139/ssrn.1336257

Faul, F., Erdfelder, E., Lang, A. G., & Buchner, A. (2007). G*Power 3: A flexible statistical power analysis program for the social, behavioral and biomedical sciences. *Behavior Research Methods*, *39*, 175–191. https://doi.org/10.3758/BF03193146

Fischer-Lokou, J., Guegen, N., Lamy, L., Martin, A., & Bullock, A. (2014). Imitation in mediation: Effects of the duration of mimicry on reaching agreement. *Social Behavior and Personality*, *42*(2), 189–196. https://doi.org/10.2224/sbp.2014.42.2.189

Fisher, R., Ury, W. L., & Patton, B. (1991). *Getting to yes: Negotiating agreement without giving in* (2nd ed.). New York, NY: Penguin.

Garrod, S., & Pickering, M. J. (2004). Towards a mechanistic psychology of dialogue. *Behavioral and Brain Sciences*, *27*, 169–226. https://doi.org/10.1017/S0140525X04000056

Giles, H. (2016). *Communication accommodation theory. Negotiating personal relationships and social identities across contexts*. Cambridge, UK: Cambridge University Press.

Guéguen, N. (2009). Mimicry and seduction: An evaluation in a courtship context. *Social Influence*, *4*(4), 249–255. https://doi.org/10.1080/15534510802628173

Hayes, A. F. (2013). *Introduction to mediation, moderation, and conditional process analysis: A regression-based approach*. New York, NY: Guilford Press.

Huffaker, D. A., Swaab, R., & Diermeier, D. (2011). The language of coalition formation in online multiparty negotiations. *Journal of Language and Social Psychology*, *30*(1), 66–81. https://doi.org/10.1177/0261927X10387102

Ireland, M. E., & Henderson, M. D. (2014). Language style matching, engagement and impasse in negotiations. *Negotiation and Conflict Management Research*, *7*(1), 1–16. https://doi.org/10.1111/ncmr.12025

Ireland, M. E., Slatcher, R. B., Eastwick, P. W., Scissors, L. E., Finkel, E. J., & Pennebaker, J. W. (2011). Language style matching predicts relationship initiation and stability. *Psychological Science*, *22*(1), 39–44. https://doi.org/10.1177/0956797610392928

Jacob, C., Gueguen, N., Martin, A., & Boulbry, G. (2011). Retail salespeople's mimicry of customers: Effects on consumer behavior. *Journal of Retailing and Consumer Services*, *18*, 381–388. https://doi.org/10.1016/j.jretconser.2010.11.006

Lakin, J. L., & Chartrand, T. L. (2003). Using nonconscious behavioral mimicry to create affiliation and rapport. *Psychological Science*, *14*, 334–339. https://doi.org/10.1111/1467-9280.14481

Maddux, W. W., Mullen, E., & Galinsky, A. D. (2008). Chameleons bake bigger pies and take bigger pieces: Strategic behavioral mimicry facilitates negotiation outcomes. *Journal of Experimental Social Psychology*, *44*, 461–468. https://doi.org/10.1016/j.jesp.2007.02.003

Morris, M., Nadler, J., Kurtzberg, T., & Thompson, L. (2002). Schmooze or lose: Social friction and lubrication in e-mail negotiations. *Group Dynamics, Theory, Research and Practice*, *6*(1), 89–100. https://doi.org/10.1037/1089-2699.6.1.89

Muir, K., Joinson, A., Cotterill, R., & Dewdney, N. (2016). Characterizing the linguistic chameleon: Personal and social correlates of linguistic style accommodation. *Human Communication Research*, *42*, 462–484. https://doi.org/10.1111/hcre.12083

Nadler, J. (2004). Rapport in negotiation and conflict resolution. *Marquette Law Review*, *87*, 875–882.

Neale, M. A. (1997). New recruit. In J. M. Brett (Ed.), *Negotiation and decision making exercises*. Evanston, IL: Dispute Resolution Research Center, Northwestern University.

Niederhoffer, K. G., & Pennebaker, J. W. (2002). Linguistic style matching in social interaction. *Journal of Language and Social Psychology*, *21*, 337–360. https://doi.org/10.1177/026192702237953

Pennebaker, J. W., Booth, R. J., Boyd, R. L., & Francis, M. E. (2015). *Linguistic inquiry and word count: LIWC2015*. Austin, TX: Pennebaker Conglomerates (www.LIWC.net)

Redeker, M., Stel, M., & Mastop, J. (2011). Does mimicking others change your self view? *The Journal of Social Psychology*, *151*, 387–390. https://doi.org/10.1080/00224545.2010.481691

Richardson, B. H., McCulloch, K. C., Taylor, P. J., & Wall, H. J. (2018). The cooperation link: Power and context moderate verbal mimicry. *Journal of Experimental Psychology: Applied*, *25*(1), 62–76. https://doi.org/10.1037/xap0000200

Richardson, B. H., Taylor, P. J., Snook, B., Conchie, S. M., & Bennell, C. (2014). Language style Matching and police interrogation outcomes. *Law and Human Behavior*, *38*, 357–366. https://doi.org/10.1037/lhb0000077

Romero, D. M., Swaab, R. I., Uzzi, B., & Galinsky, A. D. (2015). Mimicry is presidential: Linguistic style matching in presidential debates and improved polling numbers. *Personality and Social Psychology Bulletin*, *41*, 1311–1319. https://doi.org/10.1177/0146167215591168

Scissors, L. E., Gill, A. J., Geraghty, K., & Gergle, D. (2009). In CMC we trust: The role of similarity. In *Proceedings of the 27th international conference on human factors in computing systems* (pp. 527–536). https://doi.org/10.1145/1518701.1518783

Swaab, R. I., Maddux, W. W., & Sinaceur, M. (2011). Early words that work: When and how virtual linguistic mimicry facilitates negotiation outcomes. *Journal of Experimental Social Psychology*, *47*, 616–621. https://doi.org/10.1016/j.jesp.2011.01.005

Taylor, P. J., & Thomas, S. (2008). Linguistic style matching and negotiation outcome. *Negotiation and Conflict Management Research*, *1*(3), 263–281. https://doi.org/10.1111/j.1750-4716.2008.00016.x

Tickle-Degnen, L., & Rosenthal, R. (1990). The nature of rapport and its nonverbal correlates. *Psychological Inquiry*, *1*(4), 285–293. https://doi.org/10.1207/s15327965pli0104_1

van Baaren, R. B., Holland, R. W., Kawakami, K., & van Knippenberg, A. (2004). Mimicry and prosocial behavior. *Psychological Science*, *15*(1), 71–74. https://doi.org/10.1111/j.0963-7214.2004.01501012.x

---

Kate Muir, is a Lecturer in Forensic Psychology at Bath Spa University. Her research concerns interpersonal communication, and how interacting with others impacts on various elements of cognition and social relationships.

Adam Joinson, is Professor of Information Systems at the University of Bath. He works on behaviour and technology, with a foci on social behaviour and cybersecurity.

Emily Collins, is a Lecturer in Human Factors at Cardiff University. Her research takes an interdisciplinary, mixed methods approach, exploring the use and design of technology for positive outcomes in the context of work life balance, well-being and cyber security.

Rachel Cotterill, completed her PhD in natural language processing, with an emphasis on stylometry and social power. She has research interests in applying computational techniques to the intersections of linguistics and social dynamics

Nigel Dewdney, completed his PhD in computer science, looking at methods for detecting novel propositions made in social media, and has interests in linguistic influences, dialogue analysis, and language modelling.

negotiation and conflict management research

Negotiation and Conflict Management Research

When there is No ZOPA: Mental Fatigue, Integrative Complexity, and Creative Agreement in Negotiations

Jingjing Yao[1], Zhi-Xue Zhang[2] and Leigh Anne Liu[3]

1 IESEG School of Management, Lille, France
2 Peking University, Beijing, China
3 Georgia State University, Atlanta, GA, U.S.A.

Keywords
negotiationZone of Possible Agreement, cognitive flexibility theory, mental fatigue, integrative complexity.

Correspondence
Zhi-Xue Zhang, Peking University, 5 Yiheyuan Road, Beijing 100871 China; e-mail: zxzhang@gsm.pku.edu.cn

doi: 10.34891/wdt8-s068

Abstract

How to reach a creative agreement in negotiations when the Zone of Possible Agreement (ZOPA) does not apparently exist? To answer this question, we drew on the cognitive flexibility theory and proposed a model predicting that negotiators' mental fatigue would engender fewer creative agreements, and their integrative complexity acted as an underlying mechanism. Across four studies, we measured (Study 1) and manipulated (Studies 2–4) mental fatigue to test our hypotheses. We found that negotiation dyads with higher mental fatigue were less likely to display integrative complexity and hence less likely to reach creative agreements in negotiations without an apparent ZOPA. We also demonstrated that in this kind of negotiation, simply identifying additional issues or proposing packaging offers were not enough; negotiators need to do both to construct creative agreements. This research contributes to the literature of negotiation, creative problem-solving, and the cognitive flexibility theory.

Introduction

Negotiators may encounter situations when there is no apparent Zone of Possible Agreement (ZOPA), which is an overlapped range constituted by the two parties' resistance points (Raiffa, 1982; Thompson, Wang, & Gunia, 2010). For instance, in deal-making negotiations, the sellers' presumed bottom line may still outweigh the buyers' best offer in terms of the price. This may lead to three potential outcomes. First, some negotiators accept a no-deal, which is economically wise yet psychologically bothersome (O'Connor & Arnold, 2001; Thompson, 1998). Second, some negotiators ignore their resistance points and reach an otherwise economically worse off agreement (Cohen, Leonardelli, & Thompson, 2014; Tuncel, Mislin, Kesebir, & Pinkley, 2016). Third, some negotiators reach a creative agreement, which is a solution compromises negotiators' presumed resistance points but fulfills their underlying interests with additional terms (Anderson & Thompson, 2004; De Dreu, Beersma, Stroebe, & Euwema, 2006; Sinaceur, Maddux, Vasiljevic, Perez Nückel, & Galinsky, 2013).

This research was supported by a grant funded by the National Natural Science Foundation of China, awarded to the second author Zhi-Xue Zhang (Grant No. 71632002).

Both laboratory studies and real-world cases suggest that creative agreements widely exist, helping negotiators create values (Kray & Haselhuhn, 2007), resolve conflicts (Deutsch, Coleman, & Marcus, 2011), and establish rapports (Goldberg, 2005). However, little is known in the literature about what contributes to and how to reach creative agreements. As a real-world example, the Good Friday Agreement did not resolve the geographic dispute between the U.K. and Ireland over Northern Ireland due to the two countries' presumed resistance points, but it addressed both parties' underlying concerns by creating a form of co-sovereignty that allowed people in Northern Ireland to identify as British, Irish, or both (Cox, Guelke, & Stephen, 2006). Some previous theoretical work (Kesting & Smolinski, 2007; Thompson & Leonardelli, 2004) have explored the importance of creative agreement, but empirical studies of its contributing factors remain limited.

Cognitive flexibility theory offers new insights into understanding the antecedents of creative agreement. It suggests the importance of mental efforts in comprehending information in complex tasks (Spiro, Feltovich, Jacobson, & Coulson, 1992; Spiro & Jengh, 1990) because "solving problems creatively requires extensive and effortful cognitive processing" (Reiter-Palmon & Illies, 2004, p. 55). Mental fatigue is "the feeling that people experience after or during prolonged periods of cognitive activity (Boksem & Tops, 2008, p. 126), so examining the role of mental fatigue would shed light on how negotiators' mental efforts contribute to the process and outcome of their creative problem-solving. Negotiations without an apparent ZOPA present a salient context to examine whether and how mental fatigue affects the likelihood of negotiators reaching a creative agreement.

It is theoretically meaningful to study creative agreement by examining how negotiators look beyond the resistant points when ZOPA does not seemingly exist in a distributive negotiation. In this kind of negotiations, we predict differences between mentally fatigued and mentally energetic negotiators in terms of how they process information, conceive proposals, and generate creative agreements. Specifically, we hypothesized that mentally fatigued negotiators are less likely to reach creative agreements and that integrative complexity serves as the underlying mechanism. Integrative complexity is the degree to which people perceive different perspectives in considering an issue (differentiation) and develop conceptual connections among those differentiated perspectives (integration; Baker-Brown et al., 1992). This psychological process captures the structure or style of one's thinking rather than the substance of it. Across four empirical studies, we used measurement (Study 1) and experiments with different designs (Studies 2–4) to test our hypotheses and also conducted supplementary analyses to shed light on the nature of creative agreement.

This research intends to make three contributions to the literature. First, it enriches our understanding of negotiations without apparent ZOPA by investigating creative agreement as an important yet understudied outcome. Previous studies on this type of negotiations generally focus on explaining why and when people feel obligated to reach agreements as a form of cognitive bias (Cohen et al., 2014; Thompson & Leonardelli, 2004; Tuncel et al., 2016), but we shift the focus to why and how negotiators overcome this bias when it is possible yet unobvious. Our effort reflects practice in real-world negotiations (Fisher & Ury, 1991; Malhotra, 2016).

Second, this research contributes to the creativity literature by examining integrative complexity as the mechanism and revealing the process of creative problem-solving in interdependent social interactions. Although scholars have widely acknowledged that negotiation requires people to "think outside the box," very few studies empirically examined creativity in negotiations (Kung & Chao, 2019; Ott, Prowse, Fells, & Rogers, 2016; Sharma, Bottom, & Elfenbein, 2013). We showed that integrative complexity, as a cognitive style consisting of differentiation and integration sequentially, explained the emergence of creative agreements in negotiations.

Third, this research extends the application of the cognitive flexibility theory from education psychology (Spiro et al., 1992; Spiro & Jengh, 1990) to the domain of social interactions. Our examination in the negotiation context suggests that the theory can be applied in the context of problem-solving beyond knowledge acquisition, and the multiple representations of the content suggested by the theory can be

conceptualized as using multiple dimensions to reframe a problem rather than using multiple technologies to demonstrate a problem. These two extensions open new research avenues for the cognitive flexibility theory.

Literature Review and Hypothesis Development

Mental Fatigue and Creative Agreement

Creative agreement is a crucial yet understudied negotiation outcome (Tripp & Sondak, 1992). Creative agreement is more than just an agreement. Previous studies of negotiation agreement have examined the antecedents of agreement versus impasse as the negotiation outcome, such as power (Anderson & Thompson, 2004), strategies (Brett & Okumura, 1998), social and epistemic motives (Liu, Chua, & Stahl, 2010; Weingart, Bennett, & Brett, 1993), and communication and conversation contents (Brett, Olekalns, Friedman, Goates, Anderson, & Lisco, 2007; Liu, Friedman, Barry, Gelfand, & Zhang, 2012). Those studies extend our knowledge of the driving factors of agreement versus impasse, but they have a premise in their theory and methodology that given information constitutes an apparent ZOPA. Therefore, previous studies focus more on how individual and contextual factors contribute to the process during which negotiators share information, identify trade-offs, and generate a mutually satisfactory agreement within the given ZOPA (Thompson et al., 2010).

However, in negotiations without an apparent ZOPA, it is problematic to solely focus on the agreement–impasse dichotomy (Sebenius, 1992). An agreement may imply negotiators' compromise of each other's priorities, while an impasse may suggest a loss of opportunities in discovering hidden settlements. Both outcomes may lead to suboptimal solutions. In contrast, a creative agreement goes beyond the conflict of the two parties' presumed resistance points to identify additional terms that fulfill both parties' underlying interests (Sebenius, 2007). Therefore, some scholars begin to focus on problem-solving that leads to creative agreement, both theoretically (Kesting & Smolinski, 2007) and empirically (Sinaceur et al., 2013). For example, proposing first offer later rather than sooner would facilitate information exchange and creative agreement generation (Sinaceur et al., 2013). These studies provide insightful evidence that negotiators' cognitive style about how to identify additional information is the key to producing creative agreements.

Cognitive flexibility theory, first introduced in education psychology, highlights the importance of cognitive flexibility in comprehending information in unconventional situations (Spiro & Jengh, 1990). It argues that people need to adopt different perspectives rather than an oversimplified approach to solving nonroutine tasks (Spiro et al., 1992), such as in negotiations without an apparent ZOPA. Previous studies apply this theory to broader settings, showing that being cognitively flexible can facilitate creative problem-solving (De Dreu, Baas, & Nijstad, 2008). Being cognitively flexible requires substantial mental energy to facilitate the process of reaching creative agreements. Negotiations without an apparent ZOPA are a typically unconventional, nonroutine situation that requires substantial mental energy.

Mental fatigue is the lack of mental energy, signaling mental rigidity rather than flexibility, and it has been shown to associate with impaired cognitive and behavioral performance for two interrelated reasons. First, it impairs people's cognitive capacity such as attention, action monitoring, and systematic strategy development when facing a complex problem (Boksem, Meijman, & Lorist, 2006). Second, mental fatigue increases energy costs, diminishes the desirability of expected outcomes of the task, and reduces people's motivation to invest more cognitive energy (Chaudhuri & Behan, 2000). In short, mental fatigue both hinders cognitive information processing and weakens motivational willpower (Boksem & Tops, 2008). Mental fatigue weakens both trait-like need for cognition, which is the tendency to engage in and enjoy effortful cognitive endeavors, and state-like epistemic motivation, which is the motivation to hold accurate perceptions of the world (Webster, Richter, & Kruglanski, 1996). Both need for

cognition and epistemic motivation have been shown to link to creativity in general and value-creating in negotiation (De Dreu, et al., 2006; Wu, Parker, & De Jong, 2014).

Applying this theorizing into the negotiation context, we predict that mental fatigue would undermine the likelihood of creative agreement. Negotiation without an apparent ZOPA poses cognitive challenges to negotiators since they have to consume more mental energy and maintain stronger motivations to process complex information (Bargh, Gollwitzer, Lee-Chai, Barndollar, & Trötschel, 2001). We propose that mentally fatigued negotiators would experience greater difficulty in reexamining their decision-making process, drawing factual or counterfactual thinking, and retaining strong motivations (Boksem & Tops, 2008). As a result, mental fatigue would impair negotiators' problem-solving capacities and motivations in the course of negotiation, and thus decrease the likelihood of reaching a creative agreement.

Hypothesis 1. Negotiators with higher degrees of mental fatigue are less likely to reach creative agreements.

Integrative Complexity as a Mediator

Why mentally fatigued negotiators are less likely to come up with a creative solution in distributive negotiations without apparent ZOPA? The cognitive flexibility theory suggests that negotiators' integrative complexity explains the reason. In order to process information in complex domains, people need to be cognitively flexible (Spiro et al., 1992). According to Spiro and Jengh (1990), cognitive flexibility encompasses both the way knowledge is represented (i.e., in multiple rather than single conceptual dimensions) and how those mental representations operate (i.e., schema assembly rather than simple schema retrieval). This statement reveals two essential components of cognitive flexibility: representing information in multiple dimensions and then assembling them together.

Integrative complexity precisely taps the two components because it by definition consists of information differentiation and integration. Integrative complexity is broadly understood as the "the capacity and willingness to acknowledge the legitimacy of competing perspectives on the same issue (differentiation) and to forge conceptual links among these perspectives (integration)" (Tadmor, Galinsky, & Maddux, 2012, p. 522). Tadmor et al. (2012) highlight that it describes the structure or style of one's thinking rather than the content of the thought. Thus, differentiation explores divergent thinking that evaluates an issue from different perspectives, whereas integration instigates convergent thinking that synthesizes conceptual links among these perspectives (Charlton & Bakan, 1989). This theorizing is consistent with Walton's (1969) Differentiation-before-Integration model which suggests the importance of sufficient differentiation first and systematic integration second in conflict resolution.

We propose that integrative complexity is a core process of creative problem-solving in negotiations without an apparent ZOPA. As argued before, mental fatigue would impair negotiators' capacity and willingness to execute cognitively arduous tasks, so we predict a negative relationship between mental fatigue and integrative complexity. In contrast, mentally energetic negotiators are more likely to adopt integrative complexity in the course of the negotiation. Due to the lack of a ZOPA, negotiators often struggle with the seemingly unresolvable conflict anchored by the two parties' resistance points. By engaging in integrative complexity, negotiators can look beyond these resistant points, identify alternative perspectives, and reevaluate multiple dimensions of the key issue. Kray, Galinsky, and Markman (2009) found that additive counterfactual thinking (i.e., "If only I had") would be more likely to generate creative agreements than subtractive counterfactuals thinking (i.e., "If only I had not"). The differentiation component resembles the nature of additive counterfactual thinking because it adds paradoxical perspectives to the seemingly unresolvable conflict (Miron-Spektor, Gino, & Argote, 2011). The integration component allows negotiators to reach

an agreement that integrates those differentiated, paradoxical perspectives (Wilson & Thompson, 2014). As Lax and Sebenius (1986, p. 31) suggested, negotiators "may succeed by putting familiar pieces of the problem together in ways that people had not previously seen." In sum, although mental fatigue leads to less creative agreement, such negative relationship can be mitigated by introducing integrative complexity. On the other hand, mentally energetic negotiators are more likely to display integrative complexity by differentiating and integrating perspectives and dimensions of the core problem, thereby formulating a creative settlement.

Hypothesis 2. Integrative complexity mediates the relationship between negotiators' mental fatigue and the likelihood of reaching creative agreements.

Overview of Four Studies

We conduct four studies to test our hypotheses and extend our understanding of creative agreement in negotiations without apparent ZOPA. Mental fatigue was measured in Study 1 and manipulated with different approaches across Studies 2–4. We tested the main effect of mental fatigue (H1) in all four studies and the mediating effect of integrative complexity (H2) in Studies 3 and 4. The negotiation exercises in all studies were deal-making buyer–seller negotiations without apparent ZOPA: the buyers' resistance points, which were prescribed as the maximum authorized price to offer by the company, were lower than the sellers' resistance points, which were prescribed as the minimum price to achieve their goal by aggregating various interests. In all negotiation instructions, participants were simply informed that their purpose was trying to reach an agreement that they felt satisfactory. They were neither cued to particularly come up with creative solutions nor reminded to stick to the given resistance points. Because creative agreement was a dyad-level construct, we performed analyses at the dyad level in all studies.

Study 1

Participants and Procedures

Participants were 68 undergraduate students enrolled in a course on social psychology in a university in China. Their mean age was 18.76 years (SD = 1.99), and 58.9% were women. Participants were randomly assigned to the role of either a buyer or a seller in the negotiation of buying and selling a restaurant. This exercise had no apparent ZOPA according to the prescribed reservation prices to buyers (i.e., ¥ 3 million) and sellers (i.e., ¥ 3.3 million). We gave participants 15 min to prepare and 20 min to negotiate. When the time was up, they reported their results immediately and completed a postnegotiation survey independently.

Measures

Creative Agreement

It was assessed as a dichotomous variable following an established coding scheme (Galinsky, Magee, Gruenfeld, Whitson, & Liljenquist, 2008; Sinaceur et al., 2013). An outcome was a creative agreement (coded as 1) if participants reached an agreement with a price number and also included additional terms that add values to fulfill their interests. For example, participants might have included a future employment contract as an additional issue, which allows the sellers to serve their underlying interests even though the agreement price number goes beyond the sellers' presumed resistance point. An outcome was not considered as a creative agreement (coded as 0) if it was an impasse or if the agreement included only a

sales price number. Two coders agreed on 32 dyads (Cohen's $\kappa = .88$) and achieved consensus on the remaining two dyads through a discussion.

Mental Fatigue

Each participant completed a postnegotiation survey individually. In this survey, we used the five-item scale developed by Shirom and Melamed (2006) to measure mental fatigue by asking how they felt about themselves during the negotiation: (1) My thinking process is slow, (2) I have difficulty concentrating, (3) I feel as if I'm not thinking clearly, (4) I feel that I'm not focused in my thinking, and (5) I have difficulty thinking about complex things. First, all five items were measured using a six-point Likert scale (1 = *strongly disagree* to 6 = *strongly agree*) at the individual level ($\alpha = .87$). Second, based on the theorizing of negotiation processes' reciprocal and interdependent nature (Turel, 2010), we aggregated mental fatigue to the dyad level for subsequent analysis. Results justified this aggregation because $Rwg = 0.93$ and over 94% of dyads had a score of $Rwg > 0.80$.

Results and Discussion

H1 predicted that negotiators' mental fatigue leads to less creative agreements. Among the 34 dyads, 16 reached a creative agreement, while 18 did not. The correlation analysis showed that negotiation dyads' mental fatigue was negatively associated with creative agreement ($r = -.42$, $p = .013$). The logistic regression that controlled for the negotiation duration (Stuhlmacher & Champagne, 2000) showed that dyads reporting higher mental fatigue were less likely to reach a creative agreement ($B = -2.08$, $SE = 1.01$, OR = 8.02, $p = .039$). Thus, H1 was supported.

Study 1 provided very rudimentary yet important evidence for supporting H1. We found that negotiators who reported a higher level of mental fatigue were less likely to reach a creative agreement. This effect remained significant when we controlled for how long the negotiation lasted. Because no particular instruction was given to the participants on generating creative solutions, the fact that some dyads spontaneously reached creative agreements implied that this is a relevant phenomenon in negotiations. However, we were unable to draw causal inference from the finding because mental fatigue was measured in the postnegotiation survey and negotiation outcomes may contaminate how participants reported their mental fatigue, although we explicitly asked the participants to report how they felt during the negotiations. To address this limitation, we conducted an experiment in Study 2.

Study 2

Participants and Procedures

One hundred and four postgraduate students who took an introductory class on negotiation at a business school in France participated in this study. The participants were from ten different countries, mainly in Europe, Africa, and Asia. They were enrolled in four different groups in the same class taught by the same instructor: 28 in group 1, 26 in group 2, 28 in group 3, and 22 in group 4. The four groups were taught at four different points in time from 2015 to 2017. Their mean age was 22.79 years ($SD = 1.72$), and 53.4% were women.

All participants were randomly assigned as either a buyer or a seller to negotiate the sale of a property in France. The reservation price for the buyer was € 945 thousand, while the reservation price for the seller was € 1.02 million. Before they started negotiating, some of the participants answered five questions as the manipulation check. They prepared for 20 min and negotiated for 50 min, and then they submitted a contract to report the outcome.

Manipulation and Measure

Creative Agreement

It was measured the same way as it was in Study 1 (Cohen's $\kappa = .91$).

Mental Fatigue

We manipulated mental fatigue by asking the four groups of students to conduct their negotiation at different time points. Nordgren, McDonnell, and Loewenstein (2011) show that students were significantly more fatigued at the end of the class than at the beginning of it. In the present study, the class session was from 8:10 AM to 12:30 PM. Participants in groups 1 and 3 (56 participants) were assigned into the mental fatigue condition, and they negotiated from 11:40 AM to 12:30 PM; participants in groups 2 and 4 (48 participants) were assigned into the mental energy condition, and they negotiated from 8:40 AM to 9:30 AM. Due to an accessibility issue, only around half of the participants (groups 3 and 4) answered manipulation check questions, which was the mental fatigue measure used in Study 1 ($\alpha = .84$).

Results and Discussion

Results of the manipulation check based on 50 participants showed that participants in group 3 (mental fatigue condition: $M = 3.34$, $SD = 0.84$) reported a higher level of mental fatigue than participants in group 4 (mental energy condition: $M = 2.80$, $SD = 0.98$), $F(1, 48) = 4.32$, $p = .043$. In the hypothesis testing based on all 52 dyads (104 participants), we found that in the mental energy condition, 20 out of the 24 dyads reached creative agreements; in the mental fatigue condition, 15 out of the 28 dyads did so. The Chi-square test result, $\chi^2(1, 52) = 5.20$, Cramér's Phi = .31, $p = .023$, supported H1. The results are displayed in Figure 1.

Study 2 replicated the finding in Study 1. We found that participants negotiating at the beginning of the class with a higher level of mental energy were more likely to reach creative agreements than did those who were mentally fatigued after a three-hour class. We can draw causal inference from the finding, but the study had two limitations. First, we did not include manipulation check questions for all participants, although half of the sample showed the effectiveness of the manipulation and there was no significant difference in demographic characteristics among all participants. Second, our manipulation might cause an alternative explanation because taking a lengthy class could also yield physical

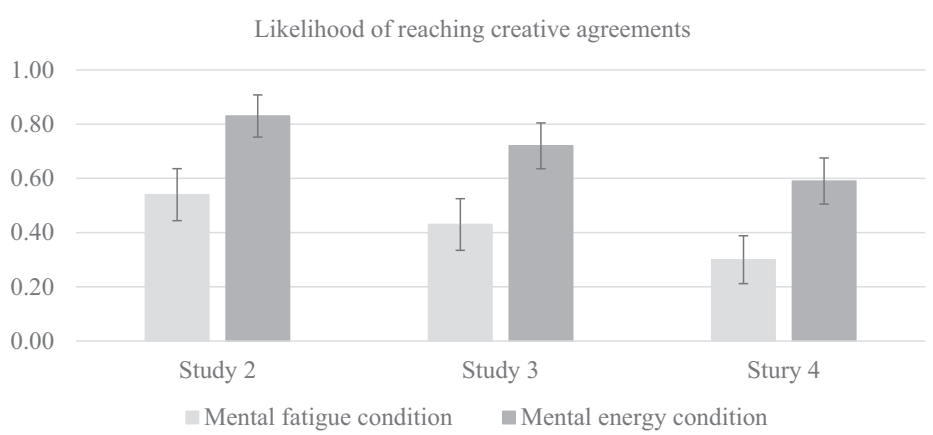


Figure 1. Mental fatigue and likelihood of reaching creative agreements.

exhaustion. To address these limitations as well as further examine the underlying mechanism, we conducted Study 3.

Study 3

Participants and Procedures

We recruited 114 Chinese undergraduate students to participate in Study 3. Their mean age was 20.62 years (SD = 2.28), and 58.8% were women. Following the researchers' instructions, all participants arrived at the same time. First, participants received the manipulation materials by looking at two pictures and completing a writing task independently, followed by manipulation check questions. Next, they were randomly assigned a role as either a buyer or a seller and then read the negotiation materials, prepared, and negotiated the Texoil simulation (Goldberg, 2000) with a counterpart with the opposite role but in the same manipulation condition. The only modification of the simulation is the change of location and currency to be in line with participants' knowledge. The buyers' reservation price was ¥ 3 million, and the sellers' reservation price was ¥ 3.3 million. The experimenter distributed one audio recorder to each dyad, but only 52 out of the 57 dyads' audio recordings were audible to code the mediating variable, and the other five inaudible ones were random missing between the two conditions. Unlike Study 1 with a negotiation time limit, in this study, we informed participants that it normally lasts for 20 min, but they could take as long as they needed. The mean duration was 15.05 min (SD = 6.01), ranging from 6 to 28 min.

Manipulation and Measures

Creative Agreement

We measured our dependent variable using the same method as that used in Studies 1 and 2, and the two coders' consistency was Cohen's $\kappa = .86$.

Mental Fatigue

We asked participants to look at pictures displayed by a projector and complete the tasks in their exercise sheets. The first picture showed about five girls playing mahjong, and the second picture showed a cow, a dog, and a person sitting on the grass. We projected the two pictures in sequence for all participants, each for 10 min. The pictures they looked at were the same, but the instructions in their exercise sheets differed between the two conditions. In the mental fatigue condition, 58 participants were asked to make up a story for each picture. In contrast, in the mental energy condition, 56 participants were asked to write down what they saw from the two pictures as objectively as possible. We expected that making up stories would consume more mental energy than simply describing the pictures, and we included two measures as the manipulation checks right after this task. Participants were asked to report how they felt by responding to eleven questions. We used the same five questions used in Study 1 to assess participants' mental fatigue. In addition, six questions adapted and adjusted from Shirom and Melamed (2006) assessed participants' physical fatigue. The scale items were (1) I feel tired, (2) I have no energy for the subsequent tasks, (3) I feel physically drained, (4) I feel fed up, (5) I feel like my "batteries" are "dead," and (6) I feel burned out. The reliabilities of the two measures were $\alpha = .87$ and .91, respectively.

Integrative Complexity

We adopted Baker-Brown et al. (1992) coding manual to code integrative complexity. First, we transformed all 52 audible recordings to transcripts and asked two research assistants who were blind to our hypothesis to get familiar with the negotiation exercise and to read through the coding manual. Second, one author who had coding experience of integrative complexity trained the two coders and instructed

them to complete 17 dyads together to ensure that they understood the coding scheme and that they achieved inter-rater consistency. Third, the two coders worked independently for the remaining 35 dyads. Specifically, they strictly followed the coding manual and used a seven-point scale in which "1" indicates no evidence of either differentiation or integration, "3" indicates moderate to high differentiation but no integration, "5" indicates moderate to high differentiation and moderate integration, and "7" indicates high differentiation and high integration. The inter-rater consistency for the 35 dyads was $\alpha = .90$.

In this study, low levels of differentiation were reflected by a tendency to use a simple, one-dimensional rule to focus on the key issue (e.g., negotiators only discussed the price). In contrast, higher levels of differentiation were reflected by the recognition of multiple dimensions of the key issue (e.g., negotiators discussed alternative perspectives to understand the price and/or proposed additional issues to discuss). Then, when differentiated elements were discussed separately rather than synthesized, evidence of low levels of integration was inferred (e.g., negotiators identified additional perspectives but negotiated them separately); when differentiated elements were linked conceptually, evidence of high levels of integration was inferred (e.g., negotiators combined additional issues together to propose trade-offs).

Results and Discussion

Results of the manipulation check questions indicated that the two conditions had a significant difference in mental fatigue but no difference in physical fatigue. Writing stories lead to a higher level of mental fatigue ($M = 3.43$, $SD = 0.99$) than describing the pictures ($M = 3.04$, $SD = 0.95$), $F(1, 112) = 4.67$, $p = .033$. However, writing stories ($M = 2.51$, $SD = 0.98$) and describing pictures ($M = 2.45$, $SD = 0.97$) did not differ in physical fatigue, $F(1, 112) = 0.14$, $p = .710$. Thus, we concluded that the manipulation was effective, and the difference in the dependent variable could be attributed to participants' variance in mental fatigue.

H1 predicted that mental fatigue would witness fewer creative agreements. In the mental fatigue condition, 12 out of the 28 dyads reached creative agreements; in the mental energy condition, 21 out of the 29 dyads did so. The Chi-square test result showed that there was a significant difference: $\chi^2(1, 57) = 5.11$, Cramér's Phi = .30, $p = .024$. H2 predicted that the integrative complexity mediated this relationship, and we used Hayes's (2012) process model. It is worth noting that including or excluding the variable negotiation duration did not change the results, and all reported results in this study have excluded this control variable to be consistent with Study 4 regarding the mediation effect test. We found that, at the dyad level, mental fatigue negatively predicted integrative complexity ($B = -1.24$, $SE = 0.48$, $p = .012$, 95% CI = −2.21, −0.28) with good model fit ($p = .012$, $R^2 = .12$). Integrative complexity positively predicted creative agreement ($B = 1.09$, $SE = 0.33$, $p = .001$, 95% CI = 0.44, 1.74) with good model fit ($p < .001$, McFadden's Pseudo-$R^2 = .32$). Overall, the indirect effect was significant ($B = -1.36$, $SE = 2.44$, 95% CI = −4.40, −0.30), and the direct effect was not significant ($B = -0.18$, $SE = 0.73$, 95% CI = −1.62, 1.25). Therefore, H1 and H2 were supported. Table 1 reports all results, and Figures 1 and 2 illustrate this mediation.

To achieve an in-depth understanding of the mediating variable integrative complexity, we conducted a supplementary analysis. We trained the two coders to code the number of additional issues that negotiators identified (e.g., co-management, offering jobs, etc.) and the number of packaging offers involving additional issues (e.g., "if I provide you loan with no interest, would you lower the sales price by 10%?"). The two numbers to some extent reflect the nature of differentiation and integration, respectively, and thus were used to proxy the two components. Coders achieved high consistencies regarding the two numbers ($\alpha = .86$ and .79). Negotiation dyads in this study on average identified 2.54 additional issues ($SD = 1.27$) and proposed 1.34 packaging offers involving identified issues ($SD = 1.41$). We modeled the indirect effect of mental fatigue on creative agreement through two mediators: the number of

Table 1
Estimates and Confidence Intervals of the Process Model

	Study 3					Study 4				
Models	*B*	*SE*	*p*	95% CI		*B*	*SE*	*p*	95% CI	
Mediator variable: integrative complexity										
Constant	1.05	0.77	.182	−0.51	2.60	3.48	0.16	.000	3.17	3.79
Mental fatigue	−1.24	0.48	.012	−2.21	−0.28	−0.60	0.22	.010	−1.05	−0.15
Dependent variable: creative agreement										
Constant	2.52	1.23	.040	0.11	4.92	−2.88	1.24	.020	−5.31	−0.45
Mental fatigue	−0.18	0.73	.803	−1.62	1.25	−0.83	0.58	.152	−1.98	0.31
Integrative complexity	1.09	0.33	.001	0.44	1.74	0.96	0.35	.007	0.26	1.65

Note. *B* represents unstandardized coefficients.

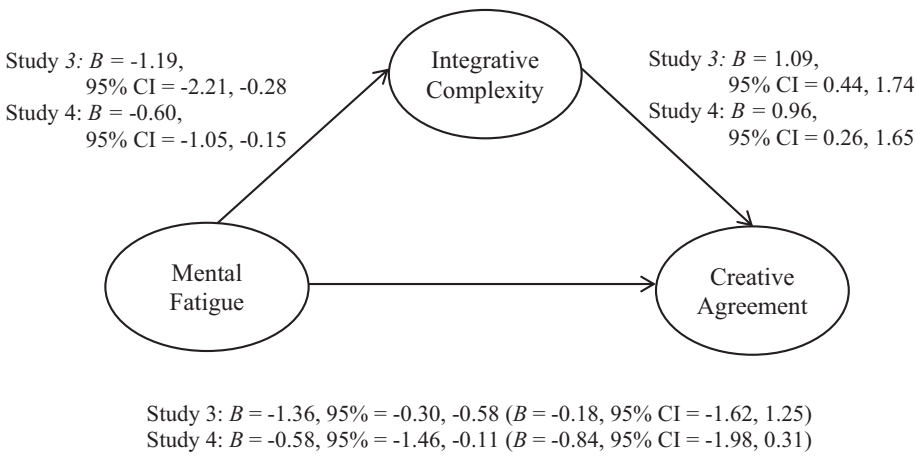


Figure 2. Integrative complexity mediates the relationship between mental fatigue and creative agreement.

additional issues and the number of packaging offers, sequentially. We found that neither the number of additional issues ($B = -0.31$, $SE = 4.13$, 95% CI = −1.73, 0.41) or the number of packaging offers ($B = -0.49$, $SE = 9.31$, 95% CI = −2.58, 0.17) could work as the mediator. However, the indirect effect through the two numbers sequentially was significant ($B = -0.50$, $SE = 4.23$, 95% CI = −1.77, −0.06). The overall indirect effect was significant ($B = -1.30$, $SE = 17.18$, 95% CI = −4.94, −0.27), but the direct effect was not significant ($B = -0.76$, $SE = 0.73$, 95% CI = −2.19, 0.67). In sum, the results had an important implication that simply identifying new issues or simply proposing packaging offers were not enough to link mental fatigue to creative agreement, but negotiators need to do both sequentially, and this is the essence of integrative complexity.

Study 3 tested the full model and found that negotiators' integrative complexity well explained the mechanism through which mental fatigue affects the likelihood of reaching creative agreements. Our manipulation influenced participants' mental fatigue but not physical fatigue, allowing us to rule out this alternative explanation. Also, we offered participants enough time to complete their negotiations instead of imposing a deadline, alleviating the potentially confounding effect of perceived time pressure. Moreover, the supplementary analysis results suggest that neither identifying additional issues nor using packing offers helped mentally energetic negotiators achieve a creative solution; instead, negotiators should first acknowledge as many perspectives as possible and then use as many offers as

possible to find the solution. Study 3 suffered from three limitations: (a) coding integrative complexity based on negotiation conversations did not well reflect individual thinking style, (b) manipulating mental fatigue by writing task was not in line with most previous methods, and (c) mental fatigue might affect people's emotional status in addition to cognitive capacities. To more properly manipulate our independent variable, code our mediating variable, and rule out this alternative explanation, we conducted Study 4.

Study 4

Participants and Procedures

We recruited 124 Chinese undergraduate students to participate in Study 4. Their mean age was 20.11 years (SD = 1.77), and 58.9% were women. First, when participants arrived at the behavioral laboratory, they were requested to turn off their phones and not use it during the experiment. They were then randomly assigned to either mental fatigue condition or mental energy condition, receiving the manipulation for 30 min. Second, they completed a pre-negotiation survey that had the manipulation check question and also measured their integrative complexity. Third, participants who were in the same manipulation condition were randomly assigned into the role of either a buyer or a seller, and they were given 10 min to read their negotiation role materials for the purpose of preparation. The negotiation exercise was a simplified version of the one we used in Study 1 with the same ZOPA structure. Fourth, they were informed that they had 10 min to try to reach an agreement that they found satisfactory and reported their negotiation outcomes when the time was up. It is worth noting that we gave participants brief materials and shorter negotiation time so that we could vary the negotiation time duration across studies and make participants fully concentrated on the negotiation task itself instead of spending time building relationships.

Manipulation and Measures

Creative Agreement

We measured our dependent variable creative agreement using the same methods as in Studies 1 to 3, and the two coders' agreement was Cohen's $\kappa = .97$.

Mental Fatigue

We randomly assigned participants to perform the AX-continuous performance test (AX-CPT) or to relax in a break room. AX-CPT is the most widely used method to induce mental fatigue (Guo, Ren, Wang, & Zhu, 2015; Marcora, Staiano, & Manning, 2009). In this task, letters were presented sequentially on the computer screen. Participants sat in front of a keyboard and were instructed to give a target response (press M) to a probe letter "X" that followed a cue letter "A." In all other cases, they had to respond with a nontarget response (press Z). In each trial, the letter displayed on the screen for 300 milliseconds, and then it disappeared for 1,200 milliseconds as the interval, during which participants could respond. Wrong responses would receive a sound warning. There were in total 1,200 trials, and the target AX letters constituted 30 percent of the letters. Finally, for a period of 30 min, 60 participants in the mental fatigue condition performed this AX-CPT task, and 64 participants in the mental energy condition were instructed to relax in the break room where they could read magazines but not play with their phones.

Integrative Complexity

In the pre-negotiation survey, all participants wrote down a 150-word essay to answer the open-ended question that negotiators should focus more on themselves or on their counterparts. Coding answers to

open-ended questions is the most widely accepted approach of measuring integrative complexity (Maddux, Bivolaru, Hafenbrack, Tadmor, & Galinsky, 2014; Moore & Tenbrunsel, 2014; Tadmor et al., 2012). Two coders who were blind to our hypotheses received training based on some answers and then independently worked through remaining answers with a seven-point Liker scale. "1" indicates no evidence of either differentiation or integration (e.g., "we should focus on the other party to know their bottom line."), "3" indicates moderate to high differentiation but no integration (e.g., "we should anticipate counterparts' personality and needs, and we should also think about our strategy."), "5" indicates moderate to high differentiation and moderate integration (e.g., "it depends on many things such as our relative leverage, overall motive, and planned strategy."), and "7" indicates high differentiation and high integration (e.g., "generally speaking, strong negotiators should focus on themselves, and weak negotiators should focus on the counterparts, and how to balance the focus further depends on whether they want to build a long-term relationship."). Coders' consistency based on the renaming 84 individuals' answers was $\alpha = .91$.

Emotions

In order to rule out alternative explanations of emotions, we also measured negotiators' positive emotion and negative emotion using the Positive and Negative Affect Schedule (PANAS; Watson, Clark, & Tellegen, 1988). The reliabilities for the two types of emotions were $\alpha = .90$ and .84, respectively.

Results and Discussion

We used the Rating Scale Mental Effort (Widyanti, Johnson, & de Waard, 2013; Zijlstra & van Doorn, 1985) as the manipulation check question. It asked participants to choose a number from a 150-point vertical line with 10 as the interval to indicate their level of mental energy. Results showed that participants in the mental fatigue condition ($M = 55.00$, $SD = 19.70$) reported much lower mental energy than those in the mental energy condition ($M = 69.38$, $SD = 19.75$), $F(1, 122) = 16.44$, $p < .001$. Also, the 60 participants in the mental fatigue condition spent more time (milliseconds) to respond in the task at the last five minutes ($M = 347.26$, $SD = 123.16$) than in the first five minutes ($M = 311.33$, $SD = 90.12$), $t(59) = 2.74$, $p = .008$. Thus, we conclude that our manipulation was successful.

H1 predicted the direct effect of mental fatigue on creative agreements. The Chi-square test result showed that 19 out of the 32 dyads in the mental energy condition reached creative agreements, but only 9 out the 30 dyads in the mental fatigue condition did so, $\chi^2(1, 62) = 5.40$, Cramér's Phi = .30, $p = .020$. H2 predicted that integrative complexity mediated this relationship. Integrative complexity was an individual-level construct while creative agreement was a dyad-level construct, so we created three indicators of the dyad-level integrative complexity: the mean, the minimum, and the maximum of two parties' integrative complexity scores, capturing the average, the lowest, and the highest levels of dyad's integrative complexity. We ran the mediation model that mental fatigue affected creative agreement through integrative complexity using the three different indicators. We found that neither the mean ($B = -0.24$, $SE = 0.23$, 95% CI = −0.91, 0.03) or the maximum ($B = -0.03$, $SE = 0.11$, 95% CI = −0.47, 0.09) had significant indirect effect, but only the minimum could work as the mediator ($B = -0.58$, $SE = 0.35$, 95% CI = −1.46, −0.11). Specifically, mental fatigue manipulation affected the minimum of dyad's integrative complexity ($B = -0.60$, $SE = 0.22$, $p = .010$, 95% CI = −1.05, −0.15) with good model fit ($p = .010$, $R^2 = .11$). The minimum of dyads' integrative complexity affected creative agreement ($B = 0.96$, $SE = 0.35$, $p = .007$, 95% CI = 0.26, 1.65) with good model fit ($p < .001$, McFadden's Pseudo-$R^2 = .16$). The direct effect from mental fatigue manipulation to creative agreement was not significant ($B = -0.84$, $SE = 0.58$, 95% CI = −1.98, 0.31). Therefore, H1 and H2 received support. We also illustrated the results in Table 1 and Figures 1 and 2.

It is reasonable to predict that mental fatigue would yield negative emotions and inhibit positive emotions and hence affect agreement generation. We found that participants' positive emotion was significantly lower in mental fatigue condition ($M = 2.47$, $SD = 0.74$) than in the mental energy condition ($M = 2.74$, $SD = 0.65$), $F(1, 122) = 4.69$, $p = .032$, and their negative emotion was significantly higher in the mental fatigue condition ($M = 1.94$, $SD = 0.63$) than the mental energy condition ($M = 1.54$, $SD = 0.47$), $F(1, 122) = 16.87$, $p < .001$. However, neither the dyad-level positive emotion ($B = 0.33$, $SE = 0.34$, 95% CI = -0.03, 1.26) nor negative emotion ($B = 0.26$, $SE = 0.34$, 95% CI = -0.34, 1.02) could act as the mediator of the relationship between mental fatigue and creative agreement. In addition, we added the two emotions into our original mediation model, and the mediating role of integrative complexity remained significant ($B = -0.89$, $SE = 0.51$, 95% CI = -2.18, -0.17).

In this study, we replicated our findings using the standard AX-CPT task to manipulate mental fatigue and the standard open-ended question coding to measure integrative complexity. We found that the lowest level, rather than the average or the highest levels, of a dyad's integrative complexity, explained the mechanism. We infer from this result that the likelihood to generate creativity agreement is mainly influenced by the party with a relatively lower level of integrative complexity in a dyad. We remind caution when interpreting this result, but overall, we replicated the mediation effect with different manipulations and measures in this study. We also ruled out the alternative explanations of positive and negative emotions as the mediating mechanisms. In sum, we found further support of our main effect and mediating effect.

General Discussion

When perceiving the nonexistence of ZOPA, negotiators have every reason to consider leaving the table. However, our findings suggest that mentally energetic rather than fatigued negotiators can remain cognitively flexible by engaging in integrative complexity and hence be more likely to reach a creative agreement, which can satisfy both parties' underlying interests even when their presumed resistance points are overlooked. The key is integrative complexity, of which differentiation and integration together capture a unique thinking structure that identifies multiple alternative dimensions of one concept and then synthesizes them back together. Results from our supplementary analysis further suggest that just identifying many additional issues or simply proposing many packaging offers is not enough to contribute to the creative agreement; negotiators need to do both sequentially. This result echoes the creativity procedure during which divergent thinking comes first and convergent thinking follows (Brophy, 2001). In addition, we find that the negotiation party with a lower level of integrative complexity may determine the baseline of the dyad's level of integrative complexity in negotiating a creative agreement. We have ruled out alternative explanations such as negotiation time duration, physical fatigue, and emotions.

Theoretical Contributions

Our findings make three contributions to the literature. First, by studying creative agreement in distributive negotiations without apparent ZOPA, we gain insights into this important yet understudied negotiation context. People expect an impasse when ZOPA does not apparently exist, yet empirical studies and real-world examples suggest alternative possibilities (Anderson & Thompson, 2004; Sinaceur et al., 2013). We draw insights from previous studies and examine the role of mental fatigue as one predicting variable of creative agreement. Mental fatigue is ubiquitous and presumably influencing negotiators' cognitive capacities, but has received little attention in the negotiation literature. This research adds new knowledge on how this dynamically changing individual mental feeling affects negotiation processes and outcomes. In addition, creative agreement is a very common practice in real-world negotiation but unfortunately receives very limited scholarly attention. Previous studies have often focused on explaining the psychological reasons of when and why negotiators have agreement bias (Cohen et al., 2014;

Thompson & Leonardelli, 2004; Tuncel et al., 2016). We shift our focus to investigate the opposite—when and why negotiators can reach a creative solution. Our effort advances the knowledge of outcomes in negotiations without apparent ZOPA beyond the agreement–impasse dichotomy.

The literature has somehow overlooked mental fatigue and creative agreement. This is partially due to the fact that most prior studies rely on negotiation tasks with apparent ZOPA and predesigned issues. In those tasks, negotiators usually identify logrolling among given issues, so how negotiator understand the relative importance of different issues is the key, and hence it is theoretically reasonable to focus more on factors that influence this information processing, such as social motives, interpersonal trust, and cultural background (Brett & Thompson, 2016). However, when ZOPA does not apparently exist, negotiators need to move beyond the presumed resistance points, and hence their cognitive capacities play a more salient role.

Second, this research contributes to the creativity literature by examining integrative complexity as the mechanism and revealing the process of creative problem-solving in negotiations. Although scholars have widely acknowledged that negotiation entails "thinking outside the box," very few studies empirically examined this thinking structure (Sharma et al., 2013). Prior studies usually conceptualized and operationalized creativity as a stable personality rather than a dynamic problem-solving process (De Pauw, Venter, & Neethling, 2011; Kurtzberg, 1998; Schei, 2013). Instead, we focus on the creative problem-solving process by showing that integrative complexity, brainstorming additional perspectives and then linking those conceptual dimensions together, explained how creative agreement emerges. Sinaceur Maddux Vasiljevic Perez Nückel and Galinsky (2013) found that identifying additional issues is the key to creative agreements in negotiations without apparent ZOPA. We extend their findings by showing that simply identifying additional issues might not be enough, and negotiators need to propose packaging issues that involve those newly identified issues. This finding implies the importance of synthesizing both divergent thinking and convergent thinking sequentially in negotiations that require creativity (Brophy, 2001).

By focusing on creative problem-solving, this research also sheds light on value creation beyond structured, quantitative, integrative negotiations to unstructured, qualitative, so-called distributive negotiations. How negotiators create values and maximize joint gains in integrative negotiations has been well documented, assuming that we should focus on claiming values in so-called distributive price negotiations. However, some scholars suggest that instead of focusing on the integrative versus distributive negotiations as the label, we should focus more on the actual value-creating versus value-claiming behaviors (Sebenius, 2015; Thompson, 1998). We show that it is possible to create values in a preconceived, so-called distributive negotiation since creative agreements meet the very standard of value-creating—searching for something "better for both parties" (Thompson, 1998, p. 46).

Third, by applying and testing the cognitive flexibility theory from education psychology to negotiation settings, this research extends the scope of the theory to interdependent social interactions. This theory was originally introduced to understand how employing multiple perspectives facilitates knowledge acquisition in ill-structured domains (Spiro & Jengh, 1990). The core insight of this theory emphasizes the ability to represent knowledge from different conceptual and case perspectives and then, when the knowledge must later be used, the ability to construct from those different conceptual and case representations a knowledge ensemble tailored to the needs of the understanding or problem-solving situation at hand (Spiro, Feltovich, Jacobson, & Coulson, 1992). We borrowed this core insight and conceptualized and operationalized this thinking style as integrative complexity. This application extends the scope of the theory in two ways. First, the theory can be applied in the interpersonal problem-solving context beyond knowledge acquisition. Second, multiple representations suggested by the theory can be conceptualized as using multiple dimensions to reframe a problem rather than using multiple technologies to demonstrate a problem. These two extensions open new research avenues for the cognitive flexibility theory.

Practical Implications

From the practical point of view, this research suggests the importance of preparing one's own mental energies, identifying the counterparts' fatigue, and taking a strategic break. We can infer that staying cognitively relaxed and energetic enables negotiators to face a difficult situation, which is usually characterized by the absence or smallness of ZOPA. To better prepare for a negotiation, scholars emphasize the importance of information collection (Volkema, 2004), alignment of interests (Brett, Friedman, & Behfar, 2009), and emotional readiness (Leary, Pillemer, & Wheeler, 2012). This research suggests that negotiators should also pay attention to their own mental states as well as that of their counterparts. Our findings by no means suggest the necessity of reaching creative agreements all the time when ZOPA is inapparent because it is sometimes unrealistic and unfeasible. Instead, we suggest that we should not leave the negotiation table immediately just because ZOPA does not exist at first glance.

Another practical implication of this research is that people who do not possess a creative personality are still capable of displaying creative problem-solving in the negotiation context. We agree with previous studies that a creative personality and creative behavior are highly correlated (Oldham & Cummings, 1996). But our findings suggest that mental fatigue can affect negotiator's integrative complexity, which is not determined by personality. By intentionally identifying additional perspectives and proposing packaging proposals, negotiators can creatively identify, understand, and solve the problem and also use these behaviors to signal to the other party their willingness to be flexible and cooperative. By doing so, negotiators could greatly increase the likelihood of reaching a mutually beneficial agreement. We thus suggest one possibility of boosting creative problem-solving in negotiations.

Limitations and Future Directions

The first limitation of this research concerns the narrow scope of creative agreement. We defined and measured creative agreement based on the literature (Sinaceur et al., 2013) as the solution that goes beyond the presumed resistance points but added additional terms. However, some participants in our studies choosing to violate the given resistance points to research agreements might just want to avoid the uncomfortable impasse, and the added new terms could be unrealistic. We acknowledge this limitation, but the fact that participants had to go beyond the resistant points and identify new terms based on their own best knowledge of feasibility did tap the essence of creativity. Also, we analyzed creative agreement at the dyad level due to its dyad nature, but by doing so, we were unable to reveal some more meaningful information about the within-dyad creative dynamics. For example, what if one negotiator is mentally energetic and the counterpart is mentally fatigued? Future studies could conceptualize and capture creative agreement from a broader scope, test the effect of mental fatigue in integrative negotiation contexts, and focus more on the within-dyad interaction regarding creative problem-solving. In this way, we may achieve a better understanding of the unique feature of dyad creativity compared with individual or group creativity.

The second limitation of this research concerns our choice of ZOPA-inapparent, distributive negotiations and the generalizability of our findings to ZOPA-apparent, integrative negotiations. The nonexistence of ZOPA, at least seemingly, offered us a salient context to observe how negotiators go beyond the presumed distributive nature. Our definition of creative agreement advocated our choice of this particular negotiation scenario which is theoretically important yet empirically understudied. But it is also theoretically reasonable to anticipate a negative influence of mental fatigue in other negotiation scenarios such as integrative negotiations with multiple prescribed issues. For example, De Dreu, Giacomantonio, Shalvi, and Sligte (2009) found that the distributive issue in the integrative negotiation could produce obstacles and prevent creative solutions. However, the way mental fatigue generates influence and the way people behave creatively in integrative negotiation may be different from what we revealed in this research.

Future research should pay more attention to the creative problem-solving process during the negotiation. Negotiators' perception of ZOPA and their interests could be dynamic rather than fixed during this process, and we need to get a more in-depth understanding of this change. Also, the motivation and mechanisms behind how creative negotiators understand problem complexity and show flexibility need further empirical tests. Properly designed laboratory simulations with quantitative information, fixed issues, and given options help us understand the negotiation process in a rigorous and comparable manner. But in many real-world settings, negotiators need to design protocols, identify negotiable issues, and generate options by themselves. In the future, we should also consider employing new research methods to capture different creative negotiation behaviors. To do so, we may have to go beyond the distributive–integrative dichotomy because the real-world negotiations do not label themselves, and we may have to also go beyond the structured negotiation scenarios with predetermined issues and payoffs.

References

Anderson, C., & Thompson, L. (2004). Affect from the top down: How powerful individuals' positive affect shapes negotiations. *Organizational Behavior & Human Decision Processes*, *95*, 125–139. https://doi.org/10.1016/j.obhdp.2004.05.002

Baker-Brown, G., Ballard, E. J., Bluck, S., de Vries, B., Suedfeld, P., & Tetlock, P. E. (1992). The conceptual/integrative complexity scoring manual. In C. P. Smith (Ed.), *Motivation and personality: Handbook of thematic content analysis* (pp. 401–418). Cambridge, UK: Cambridge University Press.

Bargh, J. A., Gollwitzer, P. M., Lee-Chai, A., Barndollar, K., & Trötschel, R. (2001). The automated will: Nonconscious activation and pursuit of behavioral goals. *Journal of Personality and Social Psychology*, *81*, 1014–1024. https://doi.org/10.1037/0022-3514.81.6.1014

Boksem, M. A., Meijman, T. F., & Lorist, M. M. (2006). Mental fatigue, motivation and action monitoring. *Biological Psychology*, *72*, 123–132. https://doi.org/10.1016/j.biopsycho.2005.08.007

Boksem, M. A., & Tops, M. (2008). Mental fatigue: Costs and benefits. *Brain Research Reviews*, *59*, 125–139. https://doi.org/10.1016/j.brainresrev.2008.07.001

Brett, J. M., Friedman, R., & Behfar, K. (2009). How to manage your negotiating team. *Harvard Business Review*, *87*, 105–109.

Brett, J. M., & Okumura, T. (1998). Inter-and intracultural negotiation: US and Japanese negotiators. *Academy of Management Journal*, *41*, 495–510. https://doi.org/10.2307/256938

Brett, J. M., Olekalns, M., Friedman, R., Goates, N., Anderson, C., & Lisco, C. C. (2007). Sticks and stones: Language, face, and online dispute resolution. *Academy of Management Journal*, *50*, 85–99. https://doi.org/10.5465/AMJ.2007.24161853

Brett, J., & Thompson, L. (2016). Negotiation. *Organizational Behavior and Human Decision Processes*, *136*, 68–79. https://doi.org/10.1016/j.obhdp.2016.06.003

Brophy, D. R. (2001). Comparing the attributes, activities, and performance of divergent, convergent, and combination thinkers. *Creativity Research Journal*, *13*, 439–455. https://doi.org/10.1207/S15326934CRJ1334_20

Charlton, S., & Bakan, P. (1989). Cognitive complexity and creativity. *Imagination, Cognition and Personality*, *8*, 315–322. https://doi.org/10.2190/C21K-GM0L-AV83-3P4H

Chaudhuri, A., & Behan, P. O. (2000). Fatigue and basal ganglia. *Journal of the Neurological Sciences*, *179*, 34–42. https://doi.org/10.1016/s0022-510x(00)00411-1

Cohen, T. R., Leonardelli, G. J., & Thompson, L. (2014). Avoiding the agreement trap: Teams facilitate impasse in negotiations with negative bargaining zones. *Negotiation and Conflict Management Research*, *7*, 232–242. https://doi.org/10.2139/ssrn.1612404

Cox, M., Guelke, A. & Stephen, F. (Eds.) (2006). *A farewell to arms? Beyond the good friday agreement*. Manchester, UK: Manchester University Press.

De Dreu, C. K., Baas, M., & Nijstad, B. A. (2008). Hedonic tone and activation level in the mood-creativity link: Toward a dual pathway to creativity model. *Journal of Personality and Social Psychology*, *94*, 739–755. https://doi.org/10.1037/0022-3514.94.5.739

De Dreu, C. K., Beersma, B., Stroebe, K., & Euwema, M. C. (2006). Motivated information processing, strategic choice, and the quality of negotiated agreement. *Journal of Personality and Social Psychology*, *90*, 927–943. https://doi.org/10.1037/0022-3514.90.6.927

De Dreu, C. K., Giacomantonio, M., Shalvi, S., & Sligte, D. (2009). Getting stuck or stepping back: Effects of obstacles and construal level in the negotiation of creative solutions. *Journal of Experimental Social Psychology*, *45*, 542–548. https://doi.org/10.1016/j.jesp.2009.01.001

De Pauw, A. S., Venter, D., & Neethling, K. (2011). The effect of negotiator creativity on negotiation outcomes in a bilateral negotiation. *Creativity Research Journal*, *23*, 42–50. https://doi.org/10.1080/10400419.2011.545734

Deutsch, M., Coleman, P. T., Marcus, E. C. (Eds.). (2011). *The handbook of conflict resolution: Theory and practice*. San Francisco, CAWiley.

Fisher, R., & Ury, W. (1991). *Getting to yes*. New York, NY: Penguin Books.

Galinsky, A. D., Magee, J. C., Gruenfeld, D. H., Whitson, J. A., & Liljenquist, K. A. (2008). Power reduces the press of the situation: Implications for creativity, conformity, and dissonance. *Journal of Personality and Social Psychology*, *95*, 1450–1466. https://doi.org/10.1037/a0012633

Goldberg, S. (2000). Texoil. https://negotiationandteamresources.com.

Goldberg, S. (2005). The secrets of successful mediators. *Negotiation Journal*, *21*, 365–376. https://doi.org/10.1111/j.1571-9979.2005.00069.x

Guo, W., Ren, J., Wang, B., & Zhu, Q. (2015). Effects of relaxing music on mental fatigue induced by a continuous performance task: Behavioral and ERPs evidence. *PLoS ONE*, *10*, e0136446. https://doi.org/10.1371/journal.pone.0136446

Hayes, A. F. (2012). *PROCESS: A versatile computational tool for observed variable mediation, moderation, and conditional process modeling* [White paper]. Retrieved from http://www.afhayes.com/public/process2012.pdf

Kesting, P., & Smolinski, R. (2007). When negotiations become routine: Not reinventing the wheel while thinking outside the box. *Negotiation Journal*, *23*, 419–438. https://doi.org/10.1111/j.1571-9979.2007.00153.x

Kray, L. J., Galinsky, A. D., & Markman, K. D. (2009). Counterfactual structure and learning from experience in negotiations. *Journal of Experimental Social Psychology*, *45*, 979–982. https://doi.org/10.1016/j.jesp.2009.03.008

Kray, L. J., & Haselhuhn, M. P. (2007). Implicit negotiation beliefs and performance: Experimental and longitudinal evidence. *Journal of Personality and Social Psychology*, *93*, 49–64. https://doi.org/10.1037/0022-3514.93.1.49

Kung, F. Y., & Chao, M. M. (2019). The impact of mixed emotions on creativity in negotiation: An interpersonal perspective. *Frontiers in Psychology*, *9*, 2660. https://doi.org/10.3389/fpsyg.2018.02660

Kurtzberg, T. R. (1998). Creative thinking, a cognitive aptitude, and integrative joint gain: A study of negotiator creativity. *Creativity Research Journal*, *11*, 283–293. https://doi.org/10.1207/s15326934crj1104_2

Lax, D. A., & Sebenius, J. K. (1986). *The manager as negotiator: Bargaining for cooperation and competitive gain*. New York, NY: Free Press.

Leary, K., Pillemer, J., & Wheeler, M. (2012). Negotiating with emotion. *Harvard Business Review*, *91*, 96–103.

Liu, L.A., Chua, C.H., & Stahl, G.K. (2010). Quality of communication experience: Definition, measurement, and implications for intercultural negotiations. *Journal of Applied Psychology*, *95*, 469–487. https://doi.org/10.1037/a0019094.

Liu, L.A., Friedman, R., Barry, B., Gelfand, M.J., & Zhang, Z.X. (2012). The dynamics of consensus building in intracultural and intercultural negotiations. *Administrative Science Quarterly*, *57*, 269–304. https://doi.org/10.1177/0001839212453456

Maddux, W. W., Bivolaru, E., Hafenbrack, A. C., Tadmor, C. T., & Galinsky, A. D. (2014). Expanding opportunities by opening your mind: Multicultural engagement predicts job market success through longitudinal increases in integrative complexity. *Social Psychological and Personality Science*, *5*, 608–615. https://doi.org/10.1177/1948550613515005

Malhotra, D. (2016). *Negotiating the impossible: How to break deadlocks and resolve ugly conflicts (without money or muscle)*. Oakland, CA: Berrett-Koehler.

Marcora, S. M., Staiano, W., & Manning, V. (2009). Mental fatigue impairs physical performance in humans. *Journal of Applied Physiology*, *106*, 857–864. https://doi.org/10.1152/japplphysiol.91324.2008

Miron-Spektor, E., Gino, F., & Argote, L. (2011). Paradoxical frames and creative sparks: Enhancing individual creativity through conflict and integration. *Organizational Behavior and Human Decision Processes*, *116*, 229–240. https://doi.org/10.1016/j.obhdp.2011.03.006

Moore, C., & Tenbrunsel, A. E. (2014). "Just think about it"? Cognitive complexity and moral choice. *Organizational Behavior and Human Decision Processes*, *123*, 138–149. https://doi.org/10.1016/j.obhdp.2013.10.006

Nordgren, L. F., McDonnell, M. H. M., & Loewenstein, G. (2011). What constitutes torture? Psychological impediments to an objective evaluation of enhanced interrogation tactics. *Psychological Science*, *22*, 689–694. https://doi.org/10.1177/0956797611405679

O'Connor, K. M., & Arnold, J. A. (2001). Distributive spirals: Negotiation impasses and the moderating role of disputant self-efficacy. *Organizational Behavior and Human Decision Processes*, *84*, 148–176. https://doi.org/10.1006/obhd.2000.2923

Oldham, G. R., & Cummings, A. (1996). Employee creativity: Personal and contextual factors at work. *Academy of Management Journal*, *39*, 607–634. https://doi.org/10.5465/256657

Ott, U. F., Prowse, P., Fells, R., & Rogers, H. (2016). The DNA of negotiations as a set theoretic concept: A theoretical and empirical analysis. *Journal of Business Research*, *69*, 3561–3571. https://doi.org/10.1016/j.jbusres.2016.01.007

Raiffa, H. (1982). *The art and science of negotiation*. Cambridge, UK: Harvard University Press.

Reiter-Palmon, R., & Illies, J. J. (2004). Leadership and creativity: Understanding leadership from a creative problem-solving perspective. *Leadership Quarterly*, *15*, 55–77. https://doi.org/10.1016/j.leaqua.2003.12.005

Schei, V. (2013). Creative people create values: Creativity and positive arousal in negotiations. *Creativity Research Journal*, *25*, 408–417. https://doi.org/10.1080/10400419.2013.843336

Sebenius, J. K. (1992). Negotiation analysis: A characterization and review. *Management Science*, *38*, 18–38. https://doi.org/10.1287/mnsc.38.1.18

Sebenius, J. K. (2007). Negotiation analysis: Between decisions and games. In W. Edwards, R. F. Miles, & D. von Winterfeldt (Eds.), *Advances in decision analysis* (pp. 469–488). New York, NY: Cambridge University Press.

Sebenius, J. K. (2015). Why behavioral theory of labor negotiations remains triumph at fifty but the labels distributive and integrative should be retired. *Negotiation Journal*, *31*, 335–348. https://doi.org/10.1111/nejo.12103

Sharma, S., Bottom, W. P., & Elfenbein, H. A. (2013). On the role of personality, cognitive ability, and emotional intelligence in predicting negotiation outcomes: A meta-analysis. *Organizational Psychology Review*, *3*, 293–336. https://doi.org/10.1177/2041386613505857

Shirom, A., & Melamed, S. (2006). A comparison of the construct validity of two burnout measures among two groups of professionals. *International Journal of Stress Management*, *13*, 176–200. https://doi.org/10.1037/1072-5245.13.2.176

Sinaceur, M., Maddux, W. W., Vasiljevic, D., Perez Nückel, R., & Galinsky, A. D. (2013). Good things come to those who wait: Late first offers facilitate creative agreements in negotiation. *Personality and Social Psychology Bulletin*, *39*, 814–825. https://doi.org/10.1177/0146167213483319

Spiro, R. J., Feltovich, P. J., Jacobson, M. J., & Coulson, R. L. (1992). Cognitive flexibility, constructivism and hypertext: Random access instruction for advanced knowledge acquisition in ill-structured domains. In T. Duffy & D. Jonassen (Eds.), *Constructivism and the technology of instruction* (pp. 57–75). Hillsdale, NJ: Erlbaum.

Spiro, R., & Jengh, J. (1990). Cognitive flexibility, random access instruction, and hypertext: Theory and technology for non-linear and multidimensional traversal of complex subject matter. In D. Nix & R. Spiro (Eds.), *Cognition, education, and multimedia: Exploring ideas in high technology* (pp. 163–205). Hillsdale, NJ: Erlbaum.

Stuhlmacher, A. F., & Champagne, M. V. (2000). The impact of time pressure and information on negotiation process and decisions. *Group Decision and Negotiation*, *9*, 471–491. https://doi.org/10.1023/A:1008736622709

Tadmor, C. T., Galinsky, A. D., & Maddux, W. W. (2012). Getting the most out of living abroad: Biculturalism and integrative complexity as key drivers of creative and professional success. *Journal of Personality and Social Psychology*, *103*, 520–542. https://doi.org/10.1037/a0029360

Thompson, L. L. (1998). *The mind and heart of the negotiator*. Upper Saddle River, NJ: Prentice Hall.

Thompson, L. L., & Leonardelli, G. J. (2004). Why negotiation is the most popular business school course. *Ivey Business Journal*, Reprint No. 9B03TD09.

Thompson, L. L., Wang, J., & Gunia, B. C. (2010). Negotiation. *Annual Review of Psychology*, *61*, 491–515. https://doi.org/10.1146/annurev.psych.093008.100458

Tripp, T. M., & Sondak, H. (1992). An evaluation of dependent variables in experimental negotiation studies: Impasse rates and Pareto efficiency. *Organizational Behavior and Human Decision Processes*, *51*, 273–295. https://doi.org/10.1016/0749-5978(92)90014-X

Tuncel, E., Mislin, A., Kesebir, S., & Pinkley, R. L. (2016). Agreement attraction and impasse aversion: Reasons for selecting a poor deal over no deal at all. *Psychological Science*, *27*, 312–321. https://doi.org/10.1177/0956797615619200

Turel, O. (2010). Interdependence issues in analyzing negotiation data. *Group Decision and Negotiation*, *19*, 111–125. https://doi.org/10.1007/s10726-008-9118-x

Volkema, R. J. (2004). Demographic, cultural, and economic predictors of perceived ethicality of negotiation behavior: A nine-country analysis. *Journal of Business Research*, *57*, 69–78. https://doi.org/10.1016/S0148-2963(02)00286-2

Walton, R.E. (1969). *Interpersonal peacemaking: Confrontations and third party consultation*. Reading, MA: Addison Wesley.

Watson, D., Clark, L. A., & Tellegen, A. (1988). Development and validation of brief measures of positive and negative affect: The PANAS scales. *Journal of Personality and Social Psychology*, *54*, 1063–1070. https://doi.org/10.1037/0022-3514.54.6.1063

Webster, D. M., Richter, L., & Kruglanski, A. W. (1996). On leaping to conclusions when feeling tired: Mental fatigue effects on impressional primacy. *Journal of Experimental Social Psychology*, *32*, 181–195. https://doi.org/10.1006/jesp.1996.0009

Weingart, L. R., Bennett, R. J., & Brett, J. M. (1993). The impact of consideration of issues and motivational orientation on group negotiation process and outcome. *Journal of Applied Psychology*, *78*, 504–517. https://doi.org/10.1037/0021-9010.78.3.504

Widyanti, A., Johnson, A., & de Waard, D. (2013). Adaptation of the rating scale mental effort (RSME) for use in Indonesia. *International Journal of Industrial Ergonomics*, *43*, 70–76. https://doi.org/10.1016/j.ergon.2012.11.003

Wilson, R. E., & Thompson, L. L. (2014). Creativity and negotiation research: The integrative potential. *International Journal of Conflict Management*, *25*, 359–386. https://doi.org/10.1108/IJCMA-05-2014-0033

Wu, C. H., Parker, S. K., & De Jong, J. P. (2014). Need for cognition as an antecedent of individual innovation behavior. *Journal of Management*, *40*, 1511–1534. https://doi.org/10.1177/0149206311429862

Zijlstra, F. R. H., & van Doorn, L. (1985). *The construction of a scale to measure subjective effort*. Technical Report, Department of Philosophy and Social Sciences, Delft University of Technology.

Jingjing Yao is an Assistant Professor of International Negotiations at IESEG School of Management. He received his Ph.D. in Organization Management from Peking University. His research interests include negotiation, trust, and cross-cultural studies. His research findings have appeared in journals such as Organizational Behavior and Human Decision Processes, Journal of Organizational Behavior, and Negotiation Journal. He currently serves as an associate editor in the Group Decision and Negotiation journal and the representative-at-large for International Association for Chinese Management Research (IACMR).

Zhi-Xue Zhang is a Professor of organization and Strategic management, and the director of Center for Research in Behavioral Science at Guanghua School of Management, Peking University. He received his PhD from University of Hong Kong. He is currently the president-elect of the International Association for Chinese Management Research (IACMR). Professor Zhang's research interests include business leadership, team process, negotiation, conflict management, and cross-cultural management.

Leigh Anne Liu is a Professor of International Business at Georgia State University and the Fulbright-Hanken Distinguished Chair of Business and Economics 2020-2021. She received her PhD from Vanderbilt University. Her research explores culture, cognition, and identity in intercultural interactions at the individual, organization, and country levels.