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Culturally-Guided Beliefs about Opposing Categories and Their Consequences for Action: The Case of Cooperation and Competition

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Abstract

We provide a new approach to how, why and with what results people think about opposing or paradoxical categories. Using a two-part laboratory study, we found differences in whether people in China and the US categorized "attempts to outperform others" as an instance of both competition and cooperation. We call membership in both categories in a paradox *integrative categorization*. We found that Chinese were more likely than in the US to engage in integrative categorization, and that the cultural difference was mediated by differences in lay dialecticism. Finally, we showed behavioral effects: integrative categorization predicted peoples' cooperative behavior after they experienced others' attempt to outperform them.

Keywords: Categories; paradox; coopetition; cooperation; competition; culture; dialecticism; China.

Introduction

Opposing categories, such as *past* and *future*, *nature* and *nurture*, or *habit* and *originality*, can be powerful organizers of cognition and action if they demarcate endpoints of important causal dimensions. Alternatively, they can distort cognition and action if they impose too simple a distinction on a complex space of possibilities. When faced with opposing categories, people could try to determine what the right answer is: what are the properties of the two opposing categories, are they endpoints of a single dimension and hence mutually exclusive, and does that dimension capture important causal forces in a domain of knowledge and activity. Alternatively, people might rely on general reasoning tendencies about how categories relate to one another and on the guidance of their cultural norms. Because most categories that people think about are complex and ambiguous in practice, a logical examination of the properties of an instance and whether those properties do or do not warrant category membership may not be possible. People may instead take predictable shortcuts in their reasoning about categories, with predictable consequences.

The specific case of opposing categories that we examine is the case of cooperation and competition. We study how people in China and the US understand these categories and the consequences for their behavior. Cooperation and competition are important categories. They are central to what it means to interact with others, be it in groups, organizations, industries or societies (e.g., Deutsch, 1949; Johnson & Johnson, 1989; Tyler & Blader, 2000).

Most research defines and operationalizes cooperation and competition as opposites (e.g., Bettenhausen & Murnighan, 1991). According to these views, individuals are either in a competitive situation or in a cooperative situation (Deutsch, 1949), either wanting to compete or wanting to cooperate (McClintock & Allison, 1989), or either acting competitively or acting cooperatively (Komorita & Parks, 1996). All of these views predict that the absence of cooperation indicates the presence of competition (and vice-versa) and treat the co-occurrence of both cooperation and competition as a contradiction.

Recently, an alternative theoretical perspective has emerged that conceptualizes cooperation and competition not as opposites, but distinct dimensions, which allows cooperation and competition to co-occur ("coopetition;" Brandenburger & Nalebuff, 1996; Tsai, 2002). For example, an individual might have a general disposition towards wanting to help others (a cooperative personality). At the same time, the individual might also like to be the most highly rewarded (a competitive personality; Xie, Chen, Yu, & Chang, 2006). All of these views predict that knowing about the presence or absence of cooperation will be uninformative regarding the presence or absence of competition.

There is a third logical possibility that no theory has yet defended but that is possible and empirically observable (Keller & Loewenstein, 2010). This is that cooperation and competition can at least partially overlap. At least in some cases, the presence of cooperation implies the presence of competition.

We provide a general framework for understanding how opposing or paradoxical categories can be related. We treat cooperation and competition as cultural categories (Atran, Medin, & Ross, 2005; Keller & Loewenstein, 2010; Sperber & Hirschfeld, 2004). Cultural categories are social conventions (Millikan, 2005) generated by cultural groups

for labeling and grouping sets of objects, practices, actors and other socially experienced examples (Douglas, 1986; Hannan, Pólos, & Carroll, 2007). Social conventions can also guide how people think about the relationship between categories. The words that are used to label cultural categories have semantic relationships (Lyons, 1977). If two words have antonymic semantic relationships (Jones, 2002; Murphy, 2003), this would imply a social convention that the named categories are in opposition.

The presence of these two kinds of social conventions—conventions about category membership and conventions about antonymy provides leeway for culture to shape which kind of convention has priority. If antonymy conventions dominate, then category membership conventions should conform, maintaining the distinction between categories by making category membership mutually exclusive. If category membership conventions dominate, then this allows paradoxes to be integrated. This is because an example that has features representative of two categories can be a member of both categories (Rosch, 1978; Smith & Medin, 1981). If those two categories happen to be antonyms, this example's dual categorization, which we call *integrative categorization*, represents a general account of how to integrate paradoxes. This is novel; discussions of paradoxes and paradoxical cognition (e.g., Miron-Spektor & Argote, 2008; Smith & Tushman, 2005) have claimed paradoxes can be integrated but not analyzed how in general this can be done.

For example, the words "work" and "play" are perceived as antonyms (Glynn, 1994). This is so regardless of the specific activities that constitute work or play, which might even have overlapping features (Jones, 2002). If an "engaging task" has features of both work and play, and work and play are antonyms, then engaging tasks establish a categorization paradox. Forcing engaging tasks to be categorized as either work or play would maintain the work-play distinction. Allowing engaging tasks to be categorized as both work and play (i.e., the integrative categorization of engaging tasks) would integrate the distinction.

We test whether people believe that cooperation and competition are antonymic cultural categories. Previous literature has found that antonymic patterns are often consistent across national cultures (Raybeck & Herrmann, 1996). Thus, our focus is on whether people engage in integrative categorization for cooperation and competition.

Testing whether people integrate the categories of cooperation and competition through overlapping category membership requires identifying an act with features of both categories. According to Tyler and Blader (2000), the key feature of a cooperative act is that it is an attempt to benefit the group. According to Johnson and Johnson (1989), the key feature of a competitive act is that it is an attempt to attain a higher relative position than others. Assuming these are accurate descriptions of conventional lay beliefs as well, then an individual's attempt to outperform others within a team or organization has features of both cooperation and competition. This act represents an attempt to gain a higher

status and an increase in effort on group tasks. Therefore, it is possible to categorize an attempt to outperform others as an instance of both competition and cooperation. This act provides an opportunity for integrative categorization.

To be clear, integrative categorization does not require that all members of one category also be categorized as members of the other category. For example, attempts to undermine others are attempts to gain higher status (and hence representative of competition) by harming others, which is detrimental to group outcomes (and hence representative of non-cooperation). There is no need for integrative categorization to include attempts to undermine others as instances of both cooperation and competition.

Our account suggests that whether people categorize attempts to outperform others as an instance of both cooperation and competition is at least in part a function of social conventions. Social conventions can be generated at different social levels, yet for fundamental social categories like cooperation and competition, the social conventions are likely to be generated at the level of the society because the categories are used in many social contexts (Keller & Loewenstein, 2010).

Societies appear to differ in their approaches to paradoxical categories. Theories of paradoxes have pointed to East Asian philosophy, with its emphasis on holism, dynamism and a "middle-way," as fostering a societal level tendency towards integrating paradoxes (Chen, 2008; Eisenhardt, 1988). Integrating paradoxes is exemplified in the 阴阳(Yin-Yang) symbol found in the classic text 易经 (Yi Jing, Book of Changes; Wilhelm & Baynes, 1968) demonstrating that black and white are part of one whole. Integrating paradoxes is a prominent feature in Laozi's 道德经 (Dao de jing; Lao, 1997). In China, Japan, Korea and Vietnam, these texts have long been canonized (Schwartz, 1985), and the integration of paradoxes has long permeated stories, proverbs and other commonplace cultural artifacts within East Asian societies (Peng & Nisbett, 1999). As supporting evidence, cultural psychology research has found tendencies toward integration of paradoxes among lay people in East Asia, establishing societal-level lay theories on contradiction and change, or lay dialecticism (Norenzayan, Smith, Kim, & Nisbett, 2002; Spencer-Rodgers, Boucher, Mori, Wang, & Peng, 2009). Although dialecticism is present in Western philosophy (Walton 1990), its influence on lay people is less pervasive (Samson 2004), suggesting that societal-level cultural conventions that emphasize the integration of paradoxes are weaker in Western societies.

A heightened exposure to lay dialecticism encourages a tolerance of contradictions in people's general views of their self and their social relations (Spencer-Rodgers et al., 2009). Therefore, a tendency towards lay dialecticism could foster integrative categorization generally, and more specifically, could foster integrating the cultural categories of cooperation and competition (such as by categorizing attempts to outperform others as instances of both

cooperation and competition). So, people exhibiting a greater degree of lay dialecticism should be more likely to believe that even if cooperation and competition are generally opposites, it is possible that an act can be both cooperative and competitive because there are situations where contradictions can occur.

Taken together, the preceding discussion leads us to predict that national culture should influence people's predilection for lay dialecticism. Lay dialecticism, in turn, should influence people's tendency for integrative categorization—specifically, categorizing attempts to outperform as an instance of both cooperation and competition.

Integrative categorization should influence behavior. Categories serve as cognitive mediators between settings and actions (Keller & Loewenstein, 2010; Markman & Ross, 2003). Individuals use categories to interpret the type of setting they are in and the actions of others, and then use their interpretations to select appropriate responses (March, 1994; Smith, 1989). The interpretation and reaction to settings and prior actions is particularly important for cooperation, because cooperation requires reciprocity (Koster & Sanders, 2006). Reciprocity implies responding with an action of the same kind (Gouldner, 1960), that is, with a response drawn from the same category. Therefore, individuals' propensity to act cooperatively is contingent on whether they categorize the setting and others' actions as cooperative. If individuals categorize others' actions as non-cooperative, they are unlikely to respond with a cooperative act (Andersson & Pearson, 1999), even when the behavior does not have a material impact on the individual (Stanne et al., 1999). As a result, integrative categorization of attempts to outperform should increase people's likelihood of responding to attempts to outperform by cooperating.

Methods

Participants

Participants were 94 US undergraduates (62% female, mean age 20.3 years) and 100 Chinese undergraduates (65%, 21.2 years).

Part 1 procedure and materials

The study consisted of two parts, separated by 1-2 weeks. During the first part, participants completed computer-based questionnaire measures for lay dialecticism (from Spencer-Rodgers et al, 2009), integrative categorization (based on Keller & Loewenstein, 2010), antonymy (based on Herrmann & Conti, 1979), self-construal measures (as control variables) and demographics. All original materials were developed in English, translated into Chinese and back translated into English; tests of the back-translated versions showed comparable results.

The key new measure is the integrative categorization measure. Participants rated 25 behaviors three times; whether they indicated a strong or weak indicator of (1) cooperation, (2) commitment (as a foil), and (3)

competition. Four of these 25 behaviors were key, because they represented attempts to outperform others. They were: 1) "A team member attempts to outperform other team members", 2) "A team member gauges others' performance and makes sure that the he or she is doing better that the others", 3) "A team member tries to get the quality of the his or her work to be better than the quality of others' work", and 4) "A team member tries to make sure that he or she isn't outdoing others in the team" (reverse-coded). These behaviors were consistently categorized by people in China and the US as indicating competition (α=.81, M=4.06, SD=.55). There was considerable variance as to whether these items indicated cooperation (α=.73), and hence we used their cooperation ratings as our measure of integrative categorization.

The remaining behaviors were mostly banal instances taken from prior research on lay beliefs about cooperation (Keller & Loewenstein, 2010) used as filler items so there would not be undue attention on attempts to outperform others. The exception was that we also included behaviors representing attempts to undermine others as a foil for attempts to outperform others. We found that people in both China and the US consistently rated attempts to undermine others as competitive (M=4.06) and non-cooperative (M=1.52). Thus, finding that some people's ratings indicate integrative categorization of attempts to outperform others should indicate their specific beliefs about attempts to outperform others rather than a general response bias.

Part 2 procedure and materials

Participants engaged in a group brainstorming task to facilitate the development of group entitativity (Campbell, 1958; Kramer, Kuo & Dailey, 1997). We assessed participants' ratings of how strongly they felt they were a group and part of a group as manipulation checks, and found that these ratings were generally high, and also that they did not account for the core findings we present later.

Participants next moved to a computer for a simulated group sales task. During the simulation, each participant managed a cart selling tea. Two simulated team members managed two other carts. During the simulation, participants had eight opportunities to share information with their teammates. The number of times they did so was our measure of cooperation.

Lastly, participants completed a post-task questionnaire. This included a manipulation check that showed that participants believed their teammates in the simulation were the people with whom they had completed the brainstorming task. The four participants who did not believe so were dropped from the analysis.

The participants in China and and the US engaged in one of two versions of the tea sales simulation. In the outperform condition, participants received messages from their teammates stating that they wanted the team to do well and that they wanted to perform the best. During the simulation, the teammates constantly checked on the others' performance (this act was made visible in the interface). In a

baseline condition, bland messages were sent and little signs of checking on the others' performance occurred. A post-task manipulation check showed that those in the outperform condition stated they experienced their teammates attempting to outperform them more so than those in the baseline condition, ($M_{outperform}$ = 5.45, SD= 1.15 $M_{baseline}$.= 2.83, SD=1.35, t(199)= 13.26, p<.001). Finally, we note that we used an unbalanced design, placing more participants in the outperform condition because at issue is whether there would be a difference in cooperation rates in the outperform condition. We expected (and found) no difference in the baseline condition.

Results

As shown in Table 1, we found China-US differences in lay dialecticism (t(143)=8.75, p<.001); integrative categorization (t(143)=10.50, p<.001); and cooperative behavior in the outperform condition (t(143)= 4.41, p<.001), but not the baseline condition. We also found China and US consistency in believing cooperation and competition to be antonyms.

Table 1: Descriptive Statistics.

	China (n=100) Mean (SD)	US (n=94) Mean (SD)
Lay Dialecticism	4.33 (0.49)	3.57 (0.58)
Integrative Categorization	3.70 (0.47)	2.68 (0.67)
Cooperative Behavior in Outperform Condition	5.12 (2.28)	3.54 (2.03)
Cooperative Behavior in Baseline Condition	4.95 (1.85)	4.95 (1.68)
Antonymy of "Cooperation" and "Competition"	1.84 (1.12)	1.88 (0.90)
Independent Self-Construal	4.49 (0.63)	5.31 (0.74)
Group-Collective Self-Construal	5.23 (0.82)	4.63 (0.99)
Perceived Task Difficulty	4.45 (1.56)	4.65 (1.61)

We used stepwise linear regression models to examine relations among variables just for those in the outperform condition. First, we found that lay dialecticism predicted integrative categorization (B=.48; SE=.11; p<.05). National culture also predicted integrative categorization (B=1.09; SE=.12; p<.05). To examine lay dialecticism as a mediator of the national culture effect, we ran a bootstrapped test of an indirect effect of national culture on integrative categorization through lay dialecticism (Preacher, Rucker, & Hayes, 2007). The mean indirect effect was 0.12 (95% CI: 0.01-0.22), p<.05, providing evidence of mediation. Therefore, the impact of national culture on integrative categorization can be at least partially attributed to differences in lay dialecticism.

Second, we found that lay dialecticism predicted cooperative behavior (B=1.09; SE=.31; p<.05). Integrative categorization also predicted cooperative behavior (B=.95; SE=.31; p<.05). A bootstrapped test of the indirect effect of lay dialecticism on cooperative behavior through integrative categorization found that the mean indirect effect was 0.13 (95% CI: 0.02-0.35), p<.05, providing evidence of mediation. Therefore, the impact of lay dialecticism on cooperative behavior can be at least partially attributed to differences in integrative categorization.

Analysis of control variables showed that the nationality to dialecticism to integrative categorization to cooperative behavior pathway was not explained away by alternative factors. For example, we found national differences in independent self-construal and group-collective self-construal, but the mediation analyses included these variables—as well as age, gender, and subjective ratings of task difficulty—as controls and still found the predicted patterns.

Discussion

We found US and Chinese consensus that cooperation and competition are antonyms, providing evidence of a coopetition paradox. We introduced the concept of integrative categorization as a specific means of integrating a paradox. We found cultural and individual differences in the integrative categorization of attempts to outperform as instances of competition and cooperation. We further found predictable consequences of integrative categorization on people's cooperative behaviors in a group simulation task. Therefore, we advance research on categories and on cooperation and competition.

We found societal-level differences between the US and China, suggesting that integrative categorization is culturally conditioned. The cultural differences were attributable to lay dialecticism differences. This implies that the national culture difference in integrative categorization was due to broad cultural belief systems about how to think about contradictions and change. The broad cultural tendencies towards lay dialecticism, by influencing integrative categorization, influenced people's reactions to others' behaviors. Therefore, the results suggest that culturally-influenced lay beliefs about paradoxes establish broad conditions that make particular behaviors more or less likely to occur. Specifically, lay dialecticism makes integrative categorization more likely, which in the case of cooperative and competitive behaviors, makes coopetition and the sustaining of cooperation within a group more likely to occur.

We note here that the data pattern described here has turned out to be robust. Subsequent research manipulating participants' social motivations (whether they are trying to maximize their own outcomes, group outcomes, or both) has shown that motivation effects are distinct from the dialecticism and integrative categorization effects that are our focus. The results are also robust when controlling for participants' performance on the simulation task.

Our results have implications for research on categories. There is growing interest in how categories are used (Markman & Ross, 2003), in complex categories (Gentner & Kurtz, 2005), and in how categories relate to each other (Goldstone, 1996; Loewenstein & Gentner, 2005). We contribute to these streams of category research by showing that people's decisions about category membership are not entirely a function of the features of the instance. Membership in one category can suppress the possibility of acknowledging membership in another category. Further, this suppression is a function of general beliefs about contradiction and change that are acquired through cultural experience exogenous to the immediate social context and the particular categories at hand. Thus, our study demonstrates that research on how people think about and use multiple categories is not only a matter of the features of exemplars, but also subject to broad and predictable cultural influence.

Our results also have implications for research on cooperation and competition. It is well established that cooperation can facilitate effective social outcomes (Campion, Medsker, & Higgs, 1993; Kogut & Zander, 1992). It is less well established but also supported that competition can increase individual effort towards collective goals, and thereby also generate effective social outcomes (Luo et al., 2006). Finally, it is also established that many social situations involve mixed motives (Komorita & Parks, 1996). The results from this study suggest that integrative categorization is important to making effective use of the positives of both cooperation and competition to advance social outcomes. People who engaged in integrative categorization were more likely to maintain cooperation and less likely to treat cooperation and competition as "trade-offs." Accordingly, people with beliefs that facilitate the integration of paradoxes may be more suitable for jobs with paradoxical situations, such as working in teams with mixed motive incentive structures. In teams with mixed motives, members with higher overall propensities for lay dialecticism and integrative categorization may perform better than teams whose members have low propensities or a mixture of propensities for lay dialecticism and integrative categorization. They might better take advantage of the positives aspects of both cooperation and competition. More broadly, the implication is that by examining categories central to social interaction, we can improve our ability to predict and provide prescriptions for obtaining positive social outcomes.

To conclude, how people think about and use specific categories can be influenced by broader cultural tendencies as to how to address oppositions and paradoxes. This is consequential; we showed that cultural tendencies to maintain separation between categories, rather than to seek out ways to integrate them, can lead to failures to support social opportunities for mutual gain.

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