Different Bumps in the Road: The Emotional Dynamics of Couple Disagreements in Belgium and Japan

Michael Boiger[1], Alexander Kirchner[2], Anna Schouten[3], Yukiko Uchida[4], & Batja Mesquita[3]

[1]University of Amsterdam, [2]Univeristy of Kent, [3]University of Leuven, [1]Kyoto University

Author Note

Michael Boiger: Department of Psychology, Faculty of Social and Behavioural Sciences, University of Amsterdam, Postbus 15900, 1001 NK Amsterdam, The Netherlands

Alexander Kirchner-Häusler: School of Psychology, Keynes College, University of Kent, Canterbury, Kent, CT2 7NP, United Kingdom

Anna Schouten & Batja Mesquita: Center for Social and Cultural Psychology, Faculty of Psychology and Educational Sciences, University of Leuven, Tiensestraat 102 – box 3727, 3000 Leuven, Belgium

Yukiko Uchida: Yukiko Uchida: Kokoro Research Center, Kyoto University, 46 Shimoadachi-cho, Yoshida Sakyo-ku, Kyoto 606-8501, Japan

Correspondence concerning this article should be addressed to Michael Boiger, Department of Psychology, Faculty of Social and Behavioural Sciences, University of Amsterdam, Postbus 15900, 1001 NK Amsterdam, The Netherlands. Email: m.boiger@uva.nl

Acknowledgement: Michael Boiger and Alexander Kirchner-Häusler completed the current research while at the University of Leuven and are now at the University of Amsterdam (MB) and the University of Kent (AKH). We would like to thank Anke Bruninx, Elien Joos, Maiko Komura, Mika Hattori, Yoko Higuchi, Nami Nishizawa Ryota Takano, Daichi Takami, Atsuhiko Uchida, Judith Wauters, and Anne van Gaans for their help with data collection. We are equally grateful to Jeanne Tsai and two anonymous reviewers for their valuable feedback to earlier versions of this manuscript. The research was supported by a postdoctoral fellowship by the Research Foundation Flanders (FWO) to Michael Boiger (12R3715N) and two grants from the University of Leuven Research Council to Batja Mesquita (OT/13/050, C14/17/048).

Abstract

The present research aims to show that during disagreements, couples gravitate towards emotional states that benefit culturally valued relationship ideals. We expected that self-assertive emotions such as anger or feelings of strength should play a more central role in Belgium, where they are instrumental for achieving culturally valued independence ideals. In comparison, other-focused emotions such as shame or empathy for the partner should play a more central role in Japan, where they support interdependence ideals. Moreover, we predicted that interacting in culturally typical ways comes with relational benefits. $N = 127$ romantic couples from Belgium and Japan discussed disagreements in the lab, which were video-recorded. After the interaction, participants separately rated their emotional experience during video-mediated recall: Every 30 seconds, the recording stopped, and participants indicated to what extent they had experienced each of 12 emotions. We identified central emotional states of the couple system in terms of attractor states because these are the patterns around which couples stabilize and that thus likely play a central role in realizing different modes of relating. In line with our predictions, the (cultural differences in) attractor states reflected states of the interpersonal emotional system that support relationship modes of independence in Belgium (e.g., angry or strong feelings) and interdependence (e.g., empathy) in Japan. Moreover, we found that—at least in Belgium—having more culturally typical interactions was associated with a stronger endorsement of culturally valued relationship ideals and, in turn, better relational functioning.

(240/250) words

Keywords: Culture, close relationships, attractors, dynamic systems

Different Bumps in the Road: The Emotional Dynamics of Couple Disagreements in Belgium and Japan

When romantic partners engage with each other, a certain degree of disagreement may be unavoidable. From time to time, their ideas, preferences, or desires will not align with each other. One person prefers to eat out, the other wants to stay in; one partner longs for more intimacy and physical closeness, the other needs privacy and personal space. How do partners experience and handle these misalignments? There is an abundant literature on how romantic partners in North American contexts handle disagreements and how this affects their relationship satisfaction (e.g., Canary, Cupach, & Messman, 1995; Fincham, 2003; Gottman, 1994). The general conclusion from this literature is that disagreement between partners is unavoidable, and that what matters is not *if* couples engage in conflict but *how* they engage in conflict. For example, while certain behaviors such as the "four horsemen" (criticism, contempt, defensiveness, stonewalling) lead to a destabilization of the relationship, other emotional behaviors, such as a healthy expression of anger and respectful assertion of individual needs have been considered a crucial part of the process by which partners bond (Gottman, 1994).

We argue that much of the existent (North American) literature on romantic relationships is based on the assumption that relationships are formed by two autonomous partners who, in the process of relationship formation, have to negotiate their respective individual needs. While this may be true for a majority of "Western", and in particular independent European (American) middle-class educated contexts, different relationship models prevail in other contexts (Henrich, Heine, & Norenzayan, 2010). For example, in Japanese contexts, relationships tend to be structured more by a concern for interdependence and symbiotic harmony (e.g., Rothbaum, Pott, Azuma, Miyake, & Weisz, 2000). In these contexts, disagreements do not primarily constitute conflicts or opportunities for the assertion

of individual needs. Instead, they may be construed as glitches that can be resolved by mutual adjustment to partners' obligations, e.g., their role as parents. If the disagreement persists, it may still be preferable to avoid tainting the relational atmosphere with anger (Boiger, Mesquita, Uchida, & Barrett, 2013). Consequently, the central "bumps on the road" for Japanese couples may foreground emotions that attune people to each other and underline perspective-taking, such as empathy or shame, rather than anger or self-assertion. The present study tested these assumptions using an observational lab paradigm during which couples discussed disagreements in their relationships (Levenson & Gottman, 1983). We explored if Belgian and Japanese couples gravitate towards different emotional states in line with the respective relationship ideals of independence in Belgium and interdependence in Japan.

Relationship Ideals in Belgium and Japan

We set out from the idea that Belgian and Japanese relationships differ in the extent to which they are organized along the ideals of independence and interdependence (Markus & Kitayama, 1991)[1]: While Belgians foreground independence in relationships, Japanese foreground interdependence. Although independence and interdependence are commonly considered as "self-construals" that describe individual characteristics rather than the relationships between individuals, this was not necessarily the intention of Markus and Kitayama. They conceived the self as a social self that is defined by how a person relates to others. Consequently, independence and interdependence can be thought of as patterns of sociality that "prescribe the normatively appropriate relations between the self (the individual) and others (other individuals)" (Markus & Kitayama, 2010, p. 423).

The Independent Mode of Relating. The hallmark of independence is the notion that people are separate and distinct individuals who pursue the "normative imperative" of "becom[ing] independent from others" (Markus & Kitayama, 1991, p. 227). When engaging in independent contexts, individuals are conceived as unique and distinctive entity.

Autonomy, self-promotion, and high self-esteem are valued (e.g., Heine, Lehman, Markus, & Kitayama, 1999), while dependency on others is seen as problematic (Tamura & Lau, 1992). A central task for the independent self is to discover their internal attributes such as preferences, desires, or needs and to make these inner qualities known to others, e.g., through self-disclosure (Chen, 1995; Kim, Sherman, & Taylor, 2008; Kito, 2005). In relationships structured by the independent mode of relating, the role of the other is, consequently, to help the person self-evaluate: "Others, or the social situation in general, are important, but primarily as standards of reflected appraisal, or as sources that can verify and affirm the inner core of the self" (Markus & Kitayama, 1991, p. 226).

Relationships organized by independence are characterized by a high degree of autonomy between partners. Partners in committed relationships maintain independence by focusing first and foremost on their own needs and goals, which is commonly seen as a sign of healthy relational functioning (e.g., Patterson, 2008). Of course, partners take each other's needs into account, but this is based on a *voluntary choice* made by both partners in the relationship (e.g., Anderson, Adams, & Plaut, 2008; Cross, Bacon, & Morris, 2000; Markus & Kitayama, 2010). For relationships operating in an independent context, this voluntary choice to commit to each other is commonly considered the core of a healthy and strong romantic relationship (e.g., Hadden, Baker, & Knee, 2018). Relationships are also based on mutual *trust* that the other person will keep making the choice to remain committed (see Yamagishi & Yamagishi, 1994). Consequently, maintaining relationships requires continuous effort and attention to signs that the other partner is no longer interested in the relationship, and that one's needs for connection may consequently not be met.

The Interdependent Mode of Relating. Interdependence is characterized by a "fundamental connectedness of human beings to each other" and the notion that people are always and integrally part of social relationships (Markus & Kitayama, 1991, p. 227). When

engaging in interdependent contexts, each person is navigating a web of relationships that give them structure and meaning and are thus constitutive of who they are. Relatedness, self-criticism and mutual dependence are valued (Doi, 1973; Kitayama, Markus, Matsumoto, & Norasakkunkit, 1997; Rothbaum et al., 2000), whereas not being attuned to others, inadequate social integration, or selfishness are seen as problematic (Tamura & Lau, 1992). Consideration and anticipation of others' needs, desires, and goals is expected, and being aware of others' expectations and adjusting oneself to these expectations are central cultural tasks (Morling, Kitayama, & Miyamoto, 2002).

Relationships structured by interdependence are characterized by a relatively high degree of unity and stability. Relatedness in close relationships is based on the partner's mutual *assurance* that they will remain committed (Yamagishi & Yamagishi, 1994). This assurance stems from partners' guarantee of loyalty and reciprocal obligations to each other. Moreover, in cultural contexts that foreground interdependence, couples often emerge from and are embedded in a shared network of persistent relationships, which provides support and incentives for relational stability (Yamagishi & Yamagishi, 1994). Because relationships are meant to endure and cannot easily be dissolved or replaced, maintaining harmony in relationships is key (Schug, Yuki, & Maddux, 2010). Partners achieve harmony by frequently taking each other's' perspective (Cohen & Gunz, 2002; Ma-Kellams & Blascovich, 2012) as well as by adjusting to each other and accepting circumstances as they are in order to fit their role obligations (Kim & Markus, 1999; Morling et al., 2002; Rothbaum et al., 2000). It is important to highlight that relationships operating in the interdependent mode of relating do not imply fusion of partners or lack of agency; rather, agency is conjoint and cooperative, which is the way for each individual in the relationship to act and express themselves (Markus & Kitayama, 2010).

Emotions during Couple Disagreements in Belgium and Japan

From the Belgian perspective of an independent mode of relating, misalignment between partners' needs, goals, or desires is to be expected. In cultural contexts with predominantly independent relationship ideals, partners are faced with the challenge to negotiate the cultural tasks of autonomy (e.g., self-exploration and self-assertion) with the desire for intimacy and connection (e.g., Erbert, 2000). Avoiding conflict is associated with negative relationship outcomes in these contexts (Caughlin & Vangelisti, 2006), possibly because conflict allows partners to negotiate needs and, consequently, develop a deeper understanding and appreciation of each other's individuality. Expressing self-assertive emotions such as anger helps partners recognize and voice their unmet needs and is considered an instrumental (and not necessarily harmful) emotion for managing conflict constructively (Averill, 1982; Canary et al., 1995; Gottman, Coan, Carrere, & Swanson, 1998). Disagreements allow partners to renegotiate their individual needs and, if paired with a disclosure of the deeper vulnerabilities around those needs, are seen as opportunities to grow both individually and as a couple (Greenberg & Goldman, 2008; Rothbaum et al., 2000). Partners in "good" independent relationships thus experience disagreements as opportunities or challenges; positive feelings of personal self-assertion such as strength or pride may consequently play an important role during disagreements for Belgian couples. This is in line with the idea that the experience of disengaging negative (e.g., anger) and positive (e.g., personal strength or pride) emotions supports independence concerns (De Leersnyder, Koval, Kuppens, & Mesquita, 2018; Kitayama, Mesquita, & Karasawa, 2006).

In contrast, from the Japanese perspective of an interdependent mode of relating, disagreement signifies a lack of mutual attunement and is best avoided or transcended. Given the primary focus on the needs and goals of close others, it is not surprising that Japanese spouses less frequently communicate their own (divergent) views openly but rather stress

perspective taking. In Japan, "[m]ind-reading and avoiding self-assertion are ways in which partners assure one another of their closeness and commitment" (Rothbaum et al., 2000, p. 1135). In fact, Japanese couples have been found to avoid the expression of negative affect and to prefer a non-conflictual approach to disagreements (Lee et al., 2013). When divergent views arise, a receptive and adjusting stance enables partners to empathize with each other and to achieve fit with their respective roles and obligations (e.g., Morling et al., 2002). Empathizing may also enable partners to maintain diverging individual views while, at the same time, acting consistently and conjointly, e.g., in their role as parents. At the same time, a self-critical stance may help partners in noticing when their behaviors are harmful to relational harmony; other-focused emotions such as shame highlight these situations for partners and are instrumental in realigning themselves with each other (Boiger et al., 2013; Heine et al., 1999). This fits with the idea that the experience of engaging negative (e.g., shame) and positive (e.g., friendly feelings or empathy) emotions supports interdependence concerns (De Leersnyder et al., 2018; Kitayama et al., 2006).

The most prevalent or typical emotions during disagreements should thus be the ones that are best suited to align couples with the cultures' relationship ideals (see also Tamir et al., 2016). In the present study, we therefore also tested the idea that emotionally responding during disagreements in culturally typical ways comes with relational benefits. To the extent that people within a culture act from a shared model of what emotional interactions in a good relationship look like, approaching that cultural norm should be associated with higher relationship satisfaction. There is some indication that, at an individual level, experiencing patterns of emotions that fit the cultural average is associated with higher well-being (De Leersnyder, Kim, & Mesquita, 2015). We propose that the same may be true at the couple level. Moreover, interacting emotionally in ways that approach the cultural average should

also be indicative of the corresponding relationship modes of independence in Belgium and interdependence in Japan.

The Current Study

The aim of the current study was to explore if the central emotional "bumps" that couples experience during disagreements may differ between Belgian and Japanese couples in line with their respective independent and interdependent modes of relating. To date, cultural differences during couple interactions have not been reported for distinct emotions. Previous research on cultural variation in emotions during interactions focused on positive / negative affect (Hiew, Kim Halford, Van De Vijver, & Liu, 2016; Lee et al., 2013; Tsai & Levenson, 1997; Tsai, Levenson, & McCoy, 2006), on couples' synchrony of either positive / negative affect (Randall, Corkery, Duggi, Kamble, & Butler, 2011), or on bipolar dimensions of hard and soft affect (Schoebi, Wang, Ababkov, & Perrez, 2010) throughout the day. We predicted that there should be theoretically meaningful differences in partners' distinct emotional experiences during ongoing interactions (see also Boiger & Mesquita, 2012), such that self-assertive emotions such as anger or strength are central for Belgian couples, and other-focused emotions such as empathy or shame are central for Japanese couples (the *emotional foregrounding hypothesis*). Moreover, we expected that couples who interact emotionally in ways that approach the cultural norm or average report more relational benefits in terms of relationship satisfaction and the endorsement of the respective mode of relating (the *emotional fit hypothesis*)

To test these hypotheses, we invited Belgian and Japanese couples to discuss a disagreement in the lab (see Levenson & Gottman, 1983). We then asked partners to separately rate their emotional experience every 30 seconds while watching recordings of their interactions; they indicated their emotional experience on a list of emotions that we had identified in preparatory research as relevant for disagreements in each culture. This allowed

us to capture the emotional interactions as they were experienced and interpreted by the participating couples themselves. For each 30-second segment, we then identified the couple's primary dyadic emotional state.

We established cultural variation in couples' ongoing emotional experience (the *emotional foregrounding hypothesis*) in two ways: As an initial deductive test, we assessed if those dyadic emotional states that we had predicted to be central (i.e., any emotional state of the couple system related to anger, strength, empathy, or shame) were more frequent in the respective cultural group. Next, and as the main test of the *emotional foregrounding hypothesis*, we inductively established the specific *emotional attractor states* for each couple and compared the culturally most frequent attractors. Attractor states are those emotional states to which the couple returns significantly more frequently than others, that recur over time, and that have substantial predictive power (Butler, 2011; Hollenstein, 2013). Identifying attractors thus goes beyond a mere comparison of what is frequent at the group level (as we did in our initial set of analyses): It allows to identify, for each couple, the specific emotional states that are salient for the couple system. Attractors highlight the preferred patterns around which couples stabilize and thus likely play a central role in realizing different modes of relating (Gardner & Wampler, 2008; Gottman, Swanson, & Swanson, 2002). Finally, we tested if couples that experienced dyadic emotional states that were more similar to the average of their cultural group reported better relational functioning (the *emotional fit hypothesis*).

Method

Participants

Participants were 58 Belgian and 80 Japanese heterosexual couples between 35 and 50 years of age. Given the exploratory nature of our research, it was not feasible to conduct power analyses; instead, we have collected a sample size that exceeded sample sizes of

previous cross-cultural studies using an interaction paradigm (Hiew et al., 2016; Lee et al., 2013; Tsai et al., 2006). In Belgium, we recruited participants through social media and flyers that were distributed in and around the city of Leuven at events, through charities, and in mailboxes. Potential participants (that is, those who were between 35-50 years old, in a heterosexual relationship for at least 2 years, cohabiting, and native Dutch speakers) were informed that the study would involve questionnaires as well as a visit to the laboratory at the University of Leuven to discuss different kinds of events in their relationship. In Japan, participants were recruited from the greater Kyoto / Kansai area by Kanden CS Forum, a recruitment and market research company located in Osaka; Japanese participants received the same information as Belgian participants (but were Japanese native speakers). All participants received 50 EUR for participating in the study and an additional 30 EUR if they completed a set of follow-up questionnaires six months later which are not reported here (Japanese participants were rewarded an equivalent reward through an internal point system managed by the recruitment company). The Belgian and Japanese couples were matched in relationship duration and had been in a committed relationship for approximately 15 years on average (M_{BE} = 15.55, SD_{BE} = 8.20; M_{JP} = 14.98, SD_{JP} = 7.20; $t(136) = 0.44$, $p = .66$).

Belgian participants were on average slightly younger than Japanese participants (M_{BE} = 41.22, SD_{BE} = 5.15; M_{JP} = 42.98, SD_{JP} = 4.33), $t(221.20) = 3.00$, $p < .01$. This cultural difference was primarily due to the Belgian female participants being younger than their Japanese counterparts (M_{BE} = 39.90, SD_{BE} = 4.97; M_{JP} = 42.29, SD_{JP} = 4.21), $t(136) = 3.05$, $p < .01$; the male participants did not differ significantly in age between cultural groups (M_{BE} = 42.53, SD_{BE} = 5.03; M_{JP} = 43.68, SD_{JP} = 4.37), $t(136) = 1.42$, $p = .16$. The Japanese couples were more likely to be married than the Belgian couples (BE: 72.4%; JP: 97.5%), $\chi^2(1) = 18.66$, $p < .001$—reflecting different customs in the two countries. The two samples differed somewhat in terms of their self-assessed socioeconomic status (SES; categories were lower

class, lower middle-lass, middle-class, higher-middle class, and upper class), $U = 1310.5$, $p < .001$: Although the majority assessed themselves as middle-class in both cultures (60.7% in Belgium; 64.4% in Japan), the Belgian couples were more frequently higher-middle class (30.4% in Belgium, 10.0% in Japan) and the Japanese more frequently lower-middle class (6.0% in Belgium, 20.6% in Japan).

Procedure

The main study consisted of three steps: A pre-laboratory questionnaire package that the participants filled out at home, a structured interaction session at the laboratory, and a video-mediated recall during which participants indicated their emotional experience during the interaction. All questionnaires, instructions, and interaction scripts were compiled in English, translated to Dutch and Japanese, and backtranslated to English. Authors fluent in English and Dutch/Japanese checked the translations and addressed any inconsistencies raised by the backtranslations. After extensive piloting, we trained Flemish Belgian /Japanese study coordinators fluent in English to administer the study in Belgium and Japan. Study coordinators then trained a group of research assistants on facilitating and recording the lab interactions at each research site. The procedure and all materials were approved by the Social and Societal Ethics Committee of the University of Leuven.

Pre-laboratory Assessment. All participants received a package of online questionnaires prior to their visit to the laboratory. The package included the informed consent, a list of potential areas of disagreement, a number of scales to assess relationship quality, as well as measures of autonomy/relatedness, subjective well-being, and attachment style. Participants were instructed to complete these questionnaires at home, without consulting their respective partners, at least three days prior to their visit to the laboratory.

Interaction session. In the lab, the couples were asked to engage in three interactions that were video recorded. First, couples engaged in a neutral interaction for 5 minutes during

which they talked about current events in their lives to accommodate to the experimental setting. Of interest to the current study, couples then engaged in a disagreement interaction for 10 minutes. Finally, couples engaged in a 10-minute positive interaction with the purpose of resolving any remaining tension between the partners and to measure couple resilience, which is not reported here. During this last interaction couples played a card matching game whereby partners had to alternately describe cards with tangrams to each other (based on Schober & Clark, 1989)

For the current study, the procedure of the disagreement interaction task was slightly adjusted to ensure its applicability to both Japanese and Belgian couples: In the original procedure developed by Levenson & Gottman (1983), the disagreement topic was chosen by a trained facilitator who determined the area of disagreement that elicited the strongest emotional response by exploring different topics with the couple. We deemed this approach not fit for the Japanese cultural context, where disagreements between partners are not readily discussed with strangers and where the intensity of the emotional response may be more difficult to judge due to display rules (Matsumoto, 1990). Instead, we decided to allow the couples in both cultures to choose the disagreement topic themselves and ensured that couples discussed comparably relevant topics across cultures. Couples were asked to choose an area of disagreement from a list of topics that we compiled for each couple based on their pre-laboratory assessment; this list included all areas of disagreement that at least one of the partners had indicated to be of importance (> 0; see measures below). The facilitator instructed the couple to choose a disagreement topic from their list that they were comfortable discussing with their partner. Couples were instructed to behave naturally, as if they were at home. The facilitator suggested to recall the last time they had had a disagreement about the chosen topic and to start their conversation by stating their different point of views. Additionally, the couple was invited to try and solve the problem..

Video-mediated Recall. After the interaction session, the couples participated in a video-mediated recall (VMR). Participants were seated in separate rooms, where they watched recordings of their disagreement interactions in a computer program developed for this purpose. Similar to online video-conferencing software, participants saw the recording of their partner (400 px wide) with their own recording overlaid at the bottom left (80 px high). The VMR consisted of two parts: During the first part, the video recording stopped every 30 seconds, and participants were asked to indicate to what extent they felt each of a range of emotions during that part of the interaction ("During the part of the conversation that I just saw, I remember feeling…"). During the second part, which is not part of the present paper, participants watched the complete video recording a second time and were asked to indicate the valence of their experience on a continuous scale from very negative to very positive using a slider. Before the actual VMR, participants completed a short training session to familiarize themselves with the procedure. The VMR software malfunctioned for one Belgian and four Japanese couples, leaving us with 57 Belgian and 76 Japanese couples for analyses.

Preparation of Stimulus Material

To obtain a list of cross-culturally relevant emotions during couple disagreements for the VMR procedure, we conducted preparatory research with different samples of Belgian, Japanese, and U.S. participants.[2] In this preparatory study, we asked participants ($N = 365$) to report a disagreement that they had recently experienced with their romantic partners. They subsequently rated for a list of 48 emotions how intensely they "experienced each of these emotions when the disagreement was happening". We had selected these 48 emotions from research on emotional experience during conflict (Bell & Song, 2005; Coan & Gottman, 2007; Sanford, 2007), common emotions between romantic partners (Gonzaga, Campos, & Bradbury, 2007), emotions representing major dimensions of emotional experience (Fontaine, Scherer, & Soriano, 2013; Watson, Clark, & Tellegen, 1988), and emotions that

differ significantly in prevalence across cultures (Kitayama et al., 2006; Matsumoto, Nezlek, & Koopmann, 2007; Mesquita, 1993; Weber, 2012).

To identify relevant emotions during disagreements, we first reduced the emotion ratings that the participants provided using Clusterwise Simultaneous Component Analysis (De Roover, Ceulemans, & Timmerman, 2012), entering each culture as a block. Clusterwise Simultaneous Component Analysis allows to establish if a common component solution (similar to a factor structure) holds across all blocks (i.e., all cultures) or if it is more appropriate to have different separate solutions per block. We found that a common solution across cultures represented the data well. Across cultures, negative emotions could be described using a six-component solution (hostile emotions, low agency negative emotions, engaging negative emotions, disengaging negative emotions, worry/anxiety, and self-conscious negative emotions) and positive emotions using a three-component solution (engaging positive emotions, low arousal disengaging positive emotions, high arousal disengaging positive emotions).

We selected the highest scoring and most theoretically relevant item(s) per component for each culture. For the negative emotions, we included ‘annoyed’ for the hostile component, ‘resigned’ and ‘hurt’ for the low agency negative component, ‘afraid of hurting’ and ‘guilty’ for the engaging negative component, ‘aloof’ for the disengaging negative component, ‘worried’ for the worry-anxiety component, and ‘embarrassed’ for the self-conscious negative component. For the positive emotions, we included ‘empathy for my partner’ for the engaging positive component, ‘strong’ for the high arousal disengaging positive component, and ‘calm’ for the low-arousal disengaging positive component. We added ‘amae’ to this list as a central emotion in Japanese relationships (Doi, 1973), and translated it as ‘like my partner would indulge any of my requests’ (Niiya, Ellsworth, & Yamaguchi, 2006); across cultures, this item had fallen into the low agency component.

The emotion terms we used in the main study thus reflected words for emotions that were found applicable to disagreements by the participants in our preparatory research, but not always the words that prevail in emotion theories. Examples of the latter would have been angry rather than annoyed, ashamed rather than embarrassed, or pride rather than strong. We decided to stick with annoyed, embarrassed, and strong as these were found to be most descriptive of people's everyday experience during disagreements.

Measures

Areas of Disagreement. To allow us to identify potential topics for the disagreement interaction, participants were asked to complete an adapted version of the Couple's Problem Inventory (CPI; Gottman, Markman, & Notarius, 1977) during pre-laboratory assessment. For the purpose of the current study, we supplemented the areas of disagreement in the CPI with those of the Dyadic Adjustment Scale (Spanier, 1976) and with additions tailored to the Japanese context. We collapsed items that were similar in meaning and added, where necessary, examples in brackets. The final list of topics totaled 22 areas of disagreement (see Supplemental Material). Participants were asked to "indicate how much you think you and your spouse *currently* disagree on each area" on a scale from 0 (do not disagree at all) to 100 (disagree very much). Participants were allowed to specify an additional area of disagreement, if they so desired. Next, participants were asked to indicate the top three areas on which they currently disagreed the most.

Relationship Satisfaction. Participants were asked to complete two questionnaires to measure their relationship satisfaction. We supplemented the well-established Couple Satisfaction Index (CSI; Funk & Rogge, 2007), with a measure of emotional support that had been adapted to the context of Japanese community samples (Uchida, Kitayama, Mesquita, Reyes, & Morling, 2008, Study 2). The CSI consists of 16 items addressing different aspects of relationship satisfaction. The response scale differs across items, with one item being rated

on a 7-point Likert scale and the remaining items on 6-point Likert scale. Higher sum scores indicate higher relationship satisfaction. Example items are “Please indicate how you would judge the degree of happiness in your relationship” and “Our relationship is strong”. Cronbach’s alpha for the CSI was .96 in Belgium and .94 in Japan. Emotional support was measured with 14 statements describing different kinds of emotional support participants may be willing to provide to their partner (e.g., “You will cheer up your partner when he/she is depressed”).[3] Participants indicated on a 7-point Likert scale from 0 (definitely not) to 6 (definitely yes) how likely they were to offer each type of support. Cronbach’s alphas were .92 in Belgium and .93 in Japan.

Autonomy-Relatedness. As a proxy for the individual endorsement of the independent mode of relating, we used a measure of autonomy, and as a proxy for the interdependent mode of relating we used a measure of relatedness. Autonomy as measured with the 7-item autonomy subscale of the Basic Needs Satisfaction in General Scale (BNSG-S; Johnston & Finney, 2010; e.g., “I am free to decide for myself how to live my life”). Relatedness was measured by supplementing the 9 relatedness items of the Self-Construal Scale (SCS; Kagitçibasi, 2007; e.g., “Those who are close to me are my top priority”) with 3 items from the Relational Interdependent Self-Construal Scale (RISC; Cross et al., 2000; e.g., “I consider people who are close to me as an important part of who I am”) that had shown metric invariance in previous cross-cultural research (Güngör, Karasawa, Boiger, Dincer, & Mesquita, 2014); the resulting relatedness scale consisted of 12 items. We unified the response categories across the autonomy and relatedness items to a 7-point Likert scale ranging from 0 (strongly disagree) to 6 (strongly agree); items from both scales were presented together in random order. The four reverse-coded relatedness items from the SCS formed a separate factor for the Japanese participants and were therefore excluded in the analyses (the pattern of results remains the same when they are included). For the autonomy

scale, Cronbach's alphas were .72 in Belgium and .79 in Japan; for the adjusted relatedness scale, Cronbach's alphas were .81 in Belgium and .84 in Japan.

Emotional Experience. Emotional experience during the interaction session was measured by video-mediated recall (VMR) directly after the interaction session had ended. The video recording stopped every 30 seconds, and participants indicated to what extent they felt each of the 12 emotions that we had established in the preparatory research. They were instructed to indicate the emotion they felt during the conversation, not while re-watching the video ("During the part of the conversation that I just saw, I remember feeling… "). The emotions were "calm", "like my partner would indulge any of my requests / amae" "empathy for my partner", "embarrassed", "guilty", "afraid of hurting my partner", "worried", "resigned", "strong", "annoyed", and "aloof" (see Preparation of Stimulus Material). Participants indicated their response on a 7-point Likert scale from 0 (not at all) to 6 (very much). We also included three action tendencies which are not the focus of the current paper.

Perception of the Disagreement Interaction. We asked participants a number of questions regarding their perception of the disagreement interaction. Of primary interest to our present analyses, participants indicated *interaction typicality* ("How typical was the interaction you had with your partner compared to the ones you have at home?") on a 7-point Likert scale from 0 (not at all) to 6 (very much). Other questions focused on their perceptions of control, conflict resolution, and emotional intensity during the interaction.[4]

Data Preparation: Identifying Couple's Primary Emotional States

To reduce complexity, to conduct a first test of our emotional foregrounding hypotheses, and to prepare our data for the main attractor state analyses, we identified for each time-interval and partner the most intensely experienced emotion among the 12 emotions that they had rated. To control for each partner's baseline, we person-centered the data for each emotion; this also led to a significant reduction in ties (51.1% of the segments

had at least one tie in the raw data; only 6.5% of the person-centered segments had ties).[5] The person-centered maxima and the raw maxima were identical in 50.8% of all segments, indicating that there remained considerable overlap with the raw data after data transformation. Descriptive statistics and group comparisons for the raw emotion intensities can be found in the Supplemental Material. Once we had identified the primary emotional state for each segment for each partner, we plotted these data into State Space Grids (SSGs; Hollenstein, 2013). SSGs plot the trajectory of one dyadic interaction in terms of the combined states of each partner; in our case, these were the emotional maxima of each partner. In these SSGs, the 12 emotions of each partner were indicated on the y-axis for one partner and on the x-axis for the other partner, yielding a total of 144 cells or possible dyadic states. Figure 1 shows an exemplary SSG for a Japanese and a Belgian couple's disagreement interaction; the emotional states that we predicted to be relatively more central in the respective culture are highlighted with shaded bars and the inductively derived attractor states for the couple are shown with bold frames.

Results and Analyses

Manipulation Checks

Because the lab interaction paradigm that we employed had not been previously used with a Japanese sample, we ran a number of manipulation checks to ensure that the paradigm worked similarly in Belgium and Japan. First, we checked if the Belgian and Japanese couples had discussed areas of disagreement that were of comparable importance to them. Couples in both cultures chose topics on which they disagreed to a moderate extent (Japan: $M = 34.40$, $SD = 20.21$; Belgium: $M = 31.98$, $SD = 20.43$; scale from 0 to 100), and the degree of disagreement did not differ across cultures, $t(131) = 0.497$ $p = .50$. We also checked if couples selected topics of more concern to the male than the female partner or vice versa, and if there were cultural differences in any potential gender differences. The gender difference in

disagreement intensity of the selected disagreement topic was close to zero in both Japan (M = –1.32, SD = 38.83) and Belgium (M = –0.28, SD = 23.34), and there was no difference between the two cultural groups $t(125.63) = –0.191$, $p = .85$). That is, couples in both cultures chose topics that mattered equally to partners of both genders.

Not surprisingly, Belgian and Japanese couples chose to discuss somewhat different areas of disagreement, $\chi^2(17) = 29.50$, $p = .01$ (Fisher's exact test) (see Supplemental Material for the distribution of topics). Upon closer inspection, the most frequent topics in each culture fell into different categories: While the Belgian couples discussed more relationship issues (communication, children, family, and work; 47.4% of Belgian and 25% of Japanese couples), the Japanese couples discussed more concrete, pragmatic issues (money, leisure time, personal characteristics, health; 53.9% of Japanese and 24.6% of Belgian couples), $\chi^2(1) = 11.48$, $p = .001$. However, the kinds of topics discussed were not systematically related to the most intensely experienced emotions, that is, our findings below.[6]

Next, we checked if the disagreement paradigm tapped into relationally relevant processes in both cultures. To this aim, we regressed our measures of relational functioning on the total amount of disagreement reported in the pre-lab questionnaire in both cultures (analyses conducted on couple means). For both Belgian and Japanese couples, more disagreements in the relationship came with lower levels of relationship satisfaction (β_{BE} = –0.54, $t = 4.80$, $p <.001$; $\beta_{JP} = –0.51$, $t = 5.13$, $p < .001$) and emotional support provision ($\beta_{BE} = –0.35$, $t = 2.80$, $p < .01$; $\beta_{JP} = –0.46$, $t = 4.43$, $p < .001$). We found a similar pattern of results when looking at the intensity of the topic that couples chose to discuss in the lab: Couples who chose to discuss more intense disagreements, in both cultures, also reported lower levels of relationship satisfaction ($\beta_{BE} = –0.48$, $t = 4.07$, $p < .001$; $\beta_{JP} = –0.33$, $t = 2.97$,

$p < .01$) and emotional support provision ($\beta_{BE} = -0.31$, $t = -2.41$, $p = .02$; $\beta_{JP} = -0.25$, $t = 2.26$, $p = .03$).

Finally, we checked if the couples in both cultures experienced their interaction in the lab as typical of how they commonly discuss disagreements. Couples from both cultures perceived their interactions to be highly typical ($M_{BE} = 4.85$, $SD_{BE} = .91$; $M_{JP} = 4.59$, $SD_{JP} = .99$, scale from 0 to 6) and there was no cultural difference between Belgian and Japanese couples, $t(131) = 1.54$, $p = .12$. We also found no gender difference in how typical the participants perceived the interaction to be in either Belgium, $t(56) = .43$, $p = .66$, or Japan, $t(75) = .35$, $p = .73$. In sum, couples in both cultures selected areas of disagreement (1) that were of comparable importance, (2) that mattered equally to female and male partners, (3) that were similarly associated with relationship satisfaction, and (4) that they discussed in ways that reflect how they commonly discuss disagreements. Further descriptive statistics, group comparisons, and intercorrelations of key variables can be found in the Supplemental Material.

The Emotional Foregrounding Hypothesis

Are Theoretically Predicted Emotional States More Frequent? As a first test of the *emotional foregrounding hypothesis*, we established if those emotional states that we had predicted to be more instrumental for the culturally dominant mode of relating (self-assertive emotions such as anger and strength in Belgium, other-focused emotions such as shame and empathy in Japan) were more frequently experienced in the respective culture. To this aim, we compared the frequencies of the dyadic emotional states in which either partner primarily experienced annoyance (as a proxy for anger), embarrassment (as a proxy for shame), strength, or empathy between the Belgian and the Japanese couples. Figure 1 highlights these regions of interest for a Japanese and a Belgian couple. Because the frequency of emotional

states was count data, we used Poisson regressions to predict frequency of emotional states from the couple's cultural group.

In line with our predictions, Belgian couples more frequently experienced emotional states involving annoyance than the Japanese couples (see Table 1). For feelings of strength, the difference was in the expected direction but did not reach significance. A post hoc test revealed that our predictions held for female, but not male partners: Emotional states in which the female partner primarily felt strength were significantly more frequent in the Belgian than the Japanese group, Exp(B) = 1.39, p = .01. In line with our predictions, the Japanese couples more frequently experienced emotional states involving embarrassment or empathy than the Belgian couples.

Moreover, when comparing the proportion of the interaction that the couples spent in either of the two regions of interest, we found that Belgian couples spent more time in emotional states primarily involving annoyance and strength (M = 37.92%, SD = 16.42%) than embarrassment and empathy (M = 25.92%, SD = 18.31%), $t(56) = 3.45$, p = .001. In contrast, Japanese couples spent proportionally more time of the interaction in emotional states primarily involving embarrassment and empathy (M = 42.72%, SD = 16.87%) than annoyance and strength (M = 29.57%, SD = 20.24%), $t(75) = 4.14$, $p < .001$.

In summary, we found some first support for our idea that different emotional states are foregrounded during couple interactions in each culture. However, these first analyses cast a fairly wide net, confirming expected cultural differences in any emotional states of the couple system involving annoyance, strength, embarrassment or empathy. One important shortcoming of this approach is that what is frequent at the group level does not necessarily play a central role at the couple level. For example, it is imaginable that all couples reported being primarily in a state of annoyance once, but that none of the couples actually gravitated toward or stabilized around annoyance during their interactions. Moreover, it remains unclear

what the other specific emotional states are toward which couples gravitate. To overcome these shortcomings, we identified the specific emotional states around which the Belgian and Japanese couples stabilized. To this aim, we established inductively the emotional attractor state(s) for each couple and tested if there were cultural differences in the couples' most common emotional attractor states.

What Are the Attractor States to Which Couples Gravitate in Each Cultural Context? As the central test of our *emotional foregrounding hypothesis*, we analyzed our data bottom-up for potential attractor states, using the SSGs as input for a "winnowing" (for more details, see Hollenstein, 2013; Lewis, Lamey, & Douglas, 1999). This method allowed us not only to establish which emotional states in each dyad are the most frequent, but also if these states are significantly more common than other states, and thus play a central role in realizing different modes of relating. The winnowing method itself involved a number of steps. First, the 144 potential dyadic emotional states were sorted by frequency. Next, the state with the lowest frequency was iteratively deleted and a heterogeneity score was calculated for each iteration ($\text{Heterogeneity}_j = \frac{\sum(\text{Observed}_i - \text{Expected}_j)^2/\text{Expected}_j}{\#\text{ of Cells}_j}$, with i being an index of the cell and j an index of the iteration). This heterogeneity score gives an indication of how spread out over the grid versus "clustered" in specific dyadic states the interaction was. If the couples had spent most of the interaction in only a few dyadic states, the heterogeneity score would be large; if the couples had experienced a different dyadic state in each segment of the interaction, the heterogeneity score would be 0. For each iteration, the proportional drop in heterogeneity from the first iteration is calculated and examined for scree. In line with Lewis and colleagues' recommendations (1999), we considered a drop of .50 or larger as an indication that the corresponding emotional state is a potential attractor states. We also followed Lewis et al. (1999) in taking an initial heterogeneity score of less than 1 as a sign that the entire state space grid was too homogenous for an attractor to be

identifiable. We excluded two Belgian and four Japanese couples because they had more than 50% missing data in their state-space grids, leaving the data from 55 Belgian and 72 Japanese couples for analysis. Figure 1 illustrates the inductively derived attractor states for both a Belgian and Japanese couple.

The initial heterogeneity score was on average larger than 1, meaning that couples did not move randomly through the emotion space; the heterogeneity score was also comparable in the two cultures (M_{BE} = 1.54, SD_{BE} = .73; M_{JP} = 1.66, SD_{JP} = .71), $t(131) = .88$, $p = .38$. We identified an average of $M = 2.35$ ($SD = 1.40$) attractor states in the Belgian couple interactions and $M = 2.28$ ($SD = 1.33$) in the Japanese couple interactions, $t(125) = .28$, $p = .78$. For 7 Belgian couples (12.7%) and 7 Japanese couples (9.7%), the initial heterogeneity score was < 1 and no attractors could thus be identified. Figure 2 shows the distribution of the attractor states per culture; dyadic emotional states that were identified as attractor states for more couples of the same cultural group are presented in darker shades.

Although the majority of attractors (30.6% of attractors in Belgium, 34.7% in Japan) were found only once in each cultural group, Figure 2 indicates that there were regions with higher density. That is, there were certain emotional attractor states that were more commonly experienced in the respective cultural group. Moreover, the most frequent attractor states also appeared to differ between cultures. To identify which of the identified attractors are significantly more likely to be attractors in the respective cultural group, we conducted another winnowing of the couple-level emotional attractors for each cultural group. That is, we used the count data underlying Figure 2 to establish what could be considered “culture-level attractors”. The initial heterogeneity score was > 1 in both cultures, allowing us to proceed with the analysis. We identified six culture-level attractors in Belgium (mutual annoyance, mutual resignation, male afraid to hurt – female resigned, either partner resigned – either partner strong, male worried – female guilty) and only one in Japan (mutual

empathy). These culture-level attractors are indicated with bold outlines in Figure 2. Table 2 lists each of these higher-order or culture-level attractor states and shows the results of Fisher's exact tests, which compared the presence of the attractor state across the two cultural groups. In line with our general predictions, both partners primarily experiencing empathy was a significantly more frequent attractor state in Japan than in Belgium, while mutual annoyance was more frequent in Belgium than in Japan. The various Belgian attractor states in which one partner is primarily feeling resigned were not significantly more frequent in Belgium than in Japan. Finally, the Belgian attractor state of male worry and female guilt was significantly more common in Belgium than in Japan.

The Emotional Fit Hypothesis

Finally, we tested the *emotional fit* hypothesis, that is, that responding to disagreements in culturally normative or typical ways is associated with better relational functioning. We expected relational benefits in two domains: On the one hand, emotionally "fitting" couples should report higher relationship satisfaction; on the other hand, they should also endorse the respective mode of relating, i.e., independence or interdependence to a greater extent. To test this prediction, we first established for each couple their degree of emotional fit. We calculated emotional fit by correlating each couple's SSG (proportion of interaction segments spent in each dyadic state) with the average SSG of their cultural group; correlations were Fisher-z transformed (see De Leersnyder et al., 2015 for a similar approach to measure individual emotional fit). Table 3 shows the results for separate regressions in which couples' emotional fit predicted the couple's mean level of relationship satisfaction (in terms of the Couple Satisfaction Index and Emotional Support provision), autonomy (as a proxy for independence) and relatedness (as a proxy for interdependence). In line with our predictions, Belgian couples who experienced emotions that fit the cultural average, reported higher levels of relationship satisfaction and autonomy; the former association was

significantly higher in Belgium than Japan, as indicated by the significant Fit × Culture interaction (Belgium = 1, Japan = 0), $B = 36.88$, $t = 2.06$, $p = .04$, 95% CI [1.40, 72.35], $\eta_p^2 = .03$. Contrary to our predictions, emotional fit did not predict relationship satisfaction or relatedness for Japanese couples and no other Fit × Culture interactions were significant.

Post-hoc Analyses. Although we did not explicitly predict that the couples' endorsement of the culture's relationship ideals drives the association between experiencing culturally fitting emotional interactions and relationship satisfaction, our theory hints at that possibility: Approaching the cultural average during emotional interactions is assumed to help couples achieve the culture's relationships ideals, which, in turn, is presumably rewarding. To test this possibility, we specified a simple mediation model with couples' autonomy endorsement as a mediator using PROCESS 3.5. We found that autonomy endorsement mediates the association between emotional fit and relationship satisfaction in Belgian couples: Both components of the indirect effect as well as the total effect were significant (see Table 3, autonomy → CSI: $b = 11.93$, $t = 4.94$, $p < .001$), the direct effect was not significant ($c' = 22.04$, $t = 1.68$, $p = .10$) and the indirect effect differed significantly from 0, $ab = 21.22$, 95%-CI [2.43, 48.77].

In another set of post-hoc analyses, we additionally explored to what extent the finding that emotionally more fitting couples report more relational benefits may be driven by the presence of culturally common attractor states in their interactions. To this aim, we tested if couples who had attractor states that contained at least one of the culture-level attractor states (38.2% of all Belgian couples; 15.3% of all Japanese couples) reported more relational benefits. Relationship satisfaction (CSI) was tendentially higher for Belgian couples when their attractor states contained at least one cultural-level attractor ($M = 71.03$, $SD = 9.99$) than when they did not ($M = 65.38$, $SD = 13.65$), $t(49.04) = 1.73$, $p = .08$. Autonomy was also endorsed to a greater extent by Belgian couples if the their attractor states contained at least

one culture-level attractor (M = 4.46, SD = 0.52) than if they did not (M = 4.10, SD = 0.63), $t(53) = 2.20$, $p = .03$. No differences were found for other measures of relationship satisfaction or for the Japanese couples. Lastly, we explored to what extent the above findings may be driven by the presence of those emotional states that had emerged across analyses as culturally different and central (mutual annoyance and mutual empathy) for relational functioning. Experiencing more mutual empathy as the most intense emotion during the interaction was not associated with relational functioning in either culture. Experiencing more mutual annoyance also did not predict any of the expected relational benefits.

To summarize, we found support for the *emotional fit hypothesis* for Belgian couples but not for Japanese couples: Belgian couples reported relational benefits when experiencing emotions that approach the cultural average during disagreements. For them, the culturally typical "blend" of emotions (which included multiple attractor states) but not the sole presence of the culturally most central and different attractors (i.e., mutual annoyance) was found to be associated with relational benefits and autonomy ideals.

Discussion

The present study started from the idea that there are meaningful cultural differences in couples' discrete emotions during disagreements. Being the first study to investigate cultural differences in discrete emotions during ongoing couple interactions, this research aimed to both advance our understanding of cultural variation in emotion and extend relationship science beyond predominantly "Western" contexts. We predicted that during ongoing interactions couples experience more of those emotional states that are instrumental for their culture's respective model of relating (the *emotional foregrounding hypothesis)*. We proposed that in Belgium, a cultural context that highlights an independent mode of relating, disagreements foreground self-assertive emotions that support partners in expressing their

individual needs and desires, such as anger or feelings of personal strength. In contrast, in Japan, where couples primarily engage in an interdependent mode of relating, we expected disagreements to foreground other-focused emotions that attune partners to each other, such as empathy or shame. Moreover, we expected that emotionally responding to disagreements in culturally normative or typical ways comes with relational benefits because these culturally fitting emotions reflect central relationship ideals (the *emotional fit hypothesis)*.

Using a lab paradigm in which couples discussed disagreements in situ and rated their emotional experiences during video-mediated recall, we captured the emotional dynamics as experienced and interpreted by the main players themselves—a sample of Belgian and Japanese couples. We found support for both hypotheses. Emotional states that reflected the culturally dominant mode of relating were foregrounded in the respective culture, that is, more central during interactions. Moreover, we found that interacting emotionally in ways that fit the cultural "norm" came with relational benefits and ideals for Belgian couples.

Different Bumps in the Road

In support of the *emotional foregrounding hypothesis*, we found that the "bumps in the road"—that is, the emotional states that stood out during couple disagreements—were different for Belgian and Japanese couples. To this aim, we first identified for each 30-second interaction segment the most intensely experience emotion for each partner. We then tested for differences in these emotional bumps in two ways: As a first deductive test of our hypothesis, we compared the frequencies of the dyadic emotional states in which either partner experienced primarily annoyance (as a proxy for anger based on our preparatory research), strength, embarrassment (as a proxy for shame), or empathy. In line with our prediction, we found that dyadic emotional states in which one partner felt primarily annoyed or the female partner felt primarily strong were more common in Belgium, and those in which on partner felt primarily embarrassed or empathetic were more common in Japan.

Moreover, in each cultural group, those emotional states that we presumed to support the respective cultural model of relating were more common than those emotional states that had been predicted to be instrumental in the other cultural group.

In the next step, we focused on the specific dyadic emotional states towards which each of the Belgian and Japanese couples gravitated. We inductively established the main "bumps" for each couple by identifying the emotional states to which the couple returned significantly more frequently than others—that is, the couple's emotional attractors. Establishing the specific attractors for each couple allowed us to identify the emotional states around which each couple stabilizes and that likely play a central role in realizing the couple's primary mode of relating (Gardner & Wampler, 2008; Gottman et al., 2002). Attractor states are thus indicative of the specific emotional states that are salient for the couple system, rather than just measuring what was frequent or intense at the group level. We used a winnowing technique to identify for each couple if they had reported attractor states. Then, we identified the culturally common attractor states (or culture-level attractors), that is, the dyadic emotional states towards which couples from each cultural group gravitated more frequently than others. Out of all 144 possible emotional states in our study, the culturally most common attractor states again included emotional states of the couple system that align with culturally valued relationship ideals of independence in Belgium (e.g., mutual annoyance) and interdependence in Japan (e.g., mutual empathy).

Emotional Attractors in Belgian Couples. In Belgium, the culturally most common attractor states were (in descending order, male partner-female partner): annoyed-annoyed, resigned-resigned, afraid to hurt partner-resigned, resigned-strong, strong-resigned, and worried-guilty. That Belgian couples most strongly gravitated towards *mutual annoyance* (and more so than the Japanese couples) is in line with our prediction that self-assertive emotions such as angry feelings should play an instrumental role for realizing independence

in Belgium. It is noteworthy that what stood out for Belgian couples and what distinguished them from Japanese couples was that they more commonly gravitated towards dyadic emotional states in which both partners primarily experience annoyance. Presumably it is these states of mutual self-assertion that turn a disagreement into a conflict: In these states, both partners try to stand their ground.

In addition to the state of mutual annoyance, we found attractor states that involved resignation; these too may support the Belgian relational mode of independence. Resignation may be seen as a failed attempt to make one's needs heard; in consequence, either both partners resign or one partner resigns while the other partner—likely the one who started by self-asserting—experiences a sense of strength (which bears some ressemblance to a demand-withdraw pattern, Eldrigde & Christensen, 2002). Although feelings of resignation do not allow partners to self-actualize in the present moment, they do mark the personal boundaries between the partners. By respecting and reinforcing the personal boundaries of each partner, resignation states can be seen as belonging to the category of negatively disengaging emotions (Kitayama et al., 2006).

We also identified two Belgian attractor states that were gendered. The attractor state in which the male partner is feeling afraid to hurt their partner while the female partner is feeling resigned was among the most common attractor states in Belgium; its reverse (that is, the male partner feeling resigned and the female partner feeling afraid to hurt) did not emerge once as an attractor state. The prevalence of this attractor state suggests that Belgian men are attuned to avoiding situations that threaten commitment by their female partner. This in line with the idea that partners in an independent mode of relating are required to closely monitor each other's commitment. A similar process may be at play in the attractor state of male worry and female guilt: Guilt is a sign of relationship commitment (Baumeister, Stillwell, & Heatherton, 1994), and its occurrence may quell the worry about the ever-looming danger of

a partner's reduced commitment. These ideas remain however speculative, especially given the time-resolution of the data: Our data do not allow us to identify which partner experienced the emotion first during the respective 30s interval.

Emotional Attractors in Japanese Couples. In Japan, one attractor state clearly stood out: Mutual empathy. This is remarkable when considering that mutual empathy was not identified as an attractor state in a single Belgian couple. Again, it is noteworthy that the only culture-level attractor involving empathy was *mutual* empathy. It is possible that softening responses and the perspective-taking that comes with empathy elicit, in return, softening responses in interaction partners (see Johnson & Greenberg, 1988). Since dyadic states in which one partner experienced empathy were common in Japan, couples may have frequently gotten "pulled" to the shared emotional state of mutual empathy. While this process is probably not limited to Japanese couples, our data indicate that it was more likely to happen among the Japanese couples in our study. The idea that empathy and mutual empathy are more readily evoked in Japan fit with the fact that *kyoukan* (共感), the Japanese word for empathy, describes an elementary form of empathy that does not come with the same notion of effort at understanding another person's feelings that the English or Dutch word invokes. This precedence of empathy also makes sense against the backdrop of Japan's relatively tight cultural norms, low relational mobility, and gender inequality, which make harmony maintenance through empathy the more workable strategy for couples.

Contrary to our expectations, we did not identify a culture-level attractor state involving shame in the Japanese couples. Although emotional states of the couple system that involved embarrassment (as a proxy for shame) were more common in the Japanese than the Belgian group, embarrassment did not take center stage during disagreement interactions in our Japanese sample. One possibility may be that in the Japanese context, shameful feelings primarily highlight falling short in the eyes of others (Boiger et al., 2013). In this context,

shame may thus afford perspective-taking and readily transform into empathy (in contrast, it may more readily transform into anger in Belgium, Kirchner et al., 2018). These ideas remain speculative for the time being, but we are investigating the regulatory processes that move couples towards culturally dominant attractor states in ongoing research.

The Role of Culturally Normative Interactions

We had expected that emotionally responding to disagreements in culturally normative or typical ways comes with relational benefits. The data supported this *emotional fit hypothesis* only for Belgian couples: Belgian couples who responded in ways that were more similar to the average in their culture reported more relationship satisfaction and endorsed autonomy to a larger extent. We conceptualized emotional fit as the correlation between each couple's SSG and the culture's average SSG—what mattered was thus not the presence of any one particular emotional state (in fact, having more emotional segments of mutual annoyance did *not* predict relationship satisfaction or autonomy for Belgians) but the "right" blend of emotions during an interaction: Those Belgian couples who experienced a culturally typical blend of emotional states, reported relational benefits. Moreover, Belgian couples who had at least one of the culturally common attractors reported tendentially higher relationship satisfaction and autonomy. For Belgians, the relational mode of independence thus appears to manifests itself in these culturally fitting emotional interactions.

The idea that culturally valued relationship ideals of independence are instantiated in emotional interactions that approach the cultural average is further corroborated by the post-hoc finding that for Belgian couples, the endorsement of autonomy mediated the link between emotional fit and relationship satisfaction. While this finding *is* consistent with our expectations, it is important to underline that we do not suggest that the explicit endorsement of independence (or autonomy) is *sufficient* or *necessary* for Belgian couples to engage in culturally fitting interactions or for them to feel satisfied when they do. For example, a

Belgian couple may interact in culturally typical ways (including the experience of self-assertive emotional attractors) without being aware of their autonomy ideals or the relation between their emotions and autonomy ideals. This view is line with the perspective that cultural constructs such as “independence” or “interdependence” are enacted through numerous implicit cultural tasks in which people engage on a daily basis; engaging in culturally fitting emotional interactions would thus be only one of the many ways in which the relational mode of independence manifests itself. Moreover, the extent to which people engage in their culture’s implicit tasks does not have to cohere with explicit self-beliefs, as people may not be aware that the cultural tasks they engage support the ideals of their culture (see Kitayama, 2002; Kitayama, Park, Sevincer, Karasawa, & Uskul, 2009).

The question remains why emotional fit was not predictive of relational benefits or ideals for Japanese couples. Although we found that the intensity of the topics that the Japanese couples discussed was predictive of their relationship satisfaction, emotionally responding to the conflict like most other couples was not. There are a number of potential explanations. First, disagreement interactions may simply not be the basis on which the Japanese couples assessed the quality of their relationship. It is imaginable that other factors, such as smoothness in daily rituals and practices, a sense of belongingness, or family relations (“family love”, 家族愛) are more diagnostic for Japanese couples when assessing their relationship satisfaction or the extent to which they endorse interdependence. Second, because Japanese couples focus on avoiding conflict, it is conceivable that disagreement discussions are less focal and consequently less consistently scripted in Japan (see also Boiger, Riediger, Uchida, & Mesquita, 2018); Japanese couples may thus lack one clear cultural script on how a “good” disagreement should unfold besides maintaining mutual empathy. If this was the case, a statistical mean would not capture what most people typical do and fitting better with this mean would not be meaningful.

Limitations and Future Directions

There are a number of limitations to the present research. First, our assessment of emotional experience during ongoing interactions was constrained by several factors. We included a limited set of emotions that we had identified in preliminary cross-cultural research. Identifying relevant emotions empirically allowed us to ensure cross-cultural relevance of our material. However, it also led to the omission of certain emotions that may have been of interest (e.g., sadness). We were further constrained by the video-mediated recall method itself: Rating 12 emotions for 20 times appeared to be the upper limit for participants during pilot testing. This limits data points in a way that could obscure some of the ongoing emotional processes. Finally, the video-mediated recall method yielded retrospective self-reports of emotional experience. Although we instructed participants to report on how they remembered they had felt during the actual interaction, and past research found that participant's patterns of physiological arousal during video-mediated recall are very similar to those of the actual interaction (Levenson & Gottman, 1983), participants may have reported their emotional experience in response to hearing and watching themselves and their partners on video. Further insight into the emotional processes at play may be obtained from coding the emotional behaviors of the couples, which is currently underway.

Second, the SSG approach that we took and that enabled us to identify attractors of the couple system required data that are mutually exclusive; that is, each member of the dyad could only be in one state during one time-interval. We therefore identified the (person-centered) emotional maxima for each time-interval and used those as input; this meant that we disregarded a lot of information about the complexity of emotional experiences. In a set of preliminary analyses, we ensured that this data reduction strategy did not introduce a cultural bias in our data by excluding mixed emotions (i.e., the simultaneous experience of

positive and negative emotions).[5] Future research may want to look in more detail at the role of complex emotional states in understanding cultural variation in emotional interactions.

Third, we deviated from the original procedure devised by Levenson & Gottman (1983) by allowing participants to choose their own topics for the disagreement interaction. We ensured, in both cultures, that this procedure led couples to discuss topics that were of importance to them and that they discussed in ways they perceived to be typical; we thus have no reason to believe that this deviation lead to more biases in one culture than another. Nonetheless, it is possible that participants preferred topics that allowed them to experience culturally condoned emotions. However, this may be true in daily life, too. Furthermore, we suggest that the original design with trained facilitators cannot rule out that couples were steered in the direction of culturally condoned emotions by the facilitator either.

Finally, the current paper constitutes but a first step in the direction of understanding the interactional and relational dynamics behind cultural differences of emotions. A primary aim of future research may be to better understand the "paths" or sequences of emotional interactions that lead to the topography of "bumps" we have identified. Future studies may also want to explore the role of emotional attractors in shaping partner's perceptions or memories of interactions. The emotional attractors that we identified in the present study replicate some of our previous findings from research with individuals reporting on their emotions during hypothetical or past social interactions (Boiger et al., 2013; Kitayama et al., 2006). It would be interesting to explore if people tend to remember and report emotions that had particular gravitational force during past interactions when making assessments about their individual emotions during past or hypothetical social interactions. Finally, future studies may also benefit from exploring emotional dynamics in other cultural contexts, which may represent a wider range of relationship ideals. The current study focused on a comparison of two cultural groups that, as we argued, vary primarily along the lines of

independence and interdependence. Other cultural contexts may, for example, vary in terms of masculinity ideals which may afford emotional interactions that are more gendered.

Conclusion

The present study is the first to study cultural differences in the unfolding of distinct emotions during ongoing couple interactions. Our findings suggest that the foregrounded emotions—the "bumps in the road"—during couple disagreements are different in Belgium and Japan, and that these differences unfold against the backdrop of different relationship ideals. Although the present research investigated only a small slice from daily life, it is easy to imagine how these slices scaffold different kinds of relationships as they accumulate in real life (see also Gottman et al., 1998; Peluso, Liebovitch, Gottman, Norman, & Su, 2012): For example, a relationship in which partners frequently gravitate towards emotions that underline their separateness may support a more independent relationship model. The process is probably one of co-construction, in which relational ideals influence the meanings that interaction partners attribute to each other, leading to different emotional interactions, while the latter also inform people's perceptions of their relationships (Boiger & Mesquita, 2012).

In this view, emotions are constituted by and constitutive of the types of relationships that exist within a given cultural context and that spin the social fabric. This way of thinking implies that emotions are best studied in their natural habitat, that is in the context of actual interactions and relationships, which are, in turn, embedded in a rich web of cultural meanings and ideals. In consequence, what a relationship disagreement "means", how it typically unfolds, and which emotions are normative and desirable can vary profoundly from one place to another. By taking these cultural meanings into account and exploring how they are instantiated in relationships and interactions, both emotion and relationship science may gain a deeper appreciation of what emotions are and what role they play in making (and sometimes breaking) relationships across cultures.

References

Anderson, S. L., Adams, G., & Plaut, V. C. (2008). The cultural grounding of personal relationship: The importance of attractiveness in everyday life. *Journal of Personality and Social Psychology*, *95*, 352–368.

Averill, J. R. (1982). *Anger and aggression: An essay on emotion*. New York: Springer.

Baumeister, R. F., Stillwell, A. M., & Heatherton, T. F. (1994). Guilt: An interpersonal approach. *Psychological Bulletin*, *115*, 243–267.

Bell, C., & Song, F. (2005). Emotions in the conflict process: an application of the cognitive appraisal model of emotions to conflict management. *International Journal of Conflict Management*, *16*, 30–54.

Boiger, M., & Mesquita, B. (2012). The construction of emotion in interactions, relationships, and cultures. *Emotion Review*, *4*, 221–229.

Boiger, M., Mesquita, B., Uchida, Y., & Barrett, L. F. (2013). Condoned or condemned: The situational affordance of anger and shame in the United States and Japan. *Personality and Social Psychology Bulletin*, *39*, 540–553.

Boiger, M., Riediger, M., Uchida, Y., & Mesquita, B. (2018). *The relational dynamics of anger and shame: Scripts for emotional interactions in Germany and Japan*.

Butler, E. A. (2011). Temporal interpersonal emotion systems: The "TIES" that form relationships. *Personality and Social Psychology Review*, *15*, 367–393.

Canary, D. J., Cupach, W. R., & Messman, S. J. (1995). *Relationship conflict: Conflict in parent-child, friendship, and romantic relationships.* Thousand Oaks, CA: Sage.

Caughlin, J. P., & Vangelisti, A. L. (2006). Conflict in dating and marital relationships. In *The Sage handbook of conflict communication: Integrating theory, research, and*

practice (pp. 129–157). Thousand Oaks, CA: Sage.

Chen, G.-M. (1995). Differences in self-disclosure patterns among Americans Versus Chinese. *Journal of Cross-Cultural Psychology*, *26*, 84–91.

Coan, J. A., & Gottman, J. M. (2007). The Specific Affect Coding System (SPAFF). In J. A. Coan & J. J. B. Allen (Eds.), *Handbook of emotion elicitation and assessment* (pp. 191–207). Oxford, UK: Oxford University Press.

Cohen, D., & Gunz, A. (2002). As seen by the other...: Perspectives on the self in the memories and emotional perceptions of Easterners and Westerners. *Psychological Science*, *13*, 55–59.

Cross, S. E., Bacon, P. L., & Morris, M. L. (2000). The relational-interdependent self-construal and relationships. *Journal of Personality and Social Psychology*, *78*, 791–808.

De Leersnyder, J., Kim, H., & Mesquita, B. (2015). Feeling right is feeling good: psychological well-being and emotional fit with culture in autonomy- versus relatedness-promoting situations. *Frontiers in Psychology*, *06*, 1–12.

De Leersnyder, J., Koval, P., Kuppens, P., & Mesquita, B. (2018). Emotions and concerns: Situational evidence for their systematic co-occurrence. *Emotion*, *18*, 597–614.

De Roover, K., Ceulemans, E., & Timmerman, M. E. (2012). How to perform multiblock component analysis in practice. *Behavior Research Methods*, *44*, 41–56.

Diener, E., Emmons, R. A., Larsen, R. J., & Griffin, S. (1985). The Satisfaction with Life Scale. *Journal of Personality Assessment*, *49*, 71–75.

Doi, T. (1973). *The anatomy of dependence.* Tokyo, Japan: Kodansha.

Eldrigde, K. A., & Christensen, A. (2002). Demand-withdraw communication during couple conflict: A review and analysis. In P. Noller & J. A. Feeney (Eds.), *Understanding*

marriage: Developments in the study of couple interaction (pp. 289–322). Cambridge.

Erbert, L. A. (2000). Conflict and dialectics: Perceptions of dialectical contradictions in marital conflict. *Journal of Social and Personal Relationships*, *17*, 638–659.

Fincham, F. D. (2003). Marital conflict: Correlates, structure, and context. *Current Directions in Psychological Science*, Vol. 12, pp. 23–27.

Fontaine, J. R. J., Scherer, K. R., & Soriano, C. (Eds.). (2013). *Components of emotional meaning: A sourcebook*. Oxford, UK: Oxford University Press.

Fraley, R. C., Waller, N. G., & Brennan, K. A. (2000). An item response theory analysis of self-report measures of adult attachment. *Journal of Personality and Social Psychology*, *78*, 350–365.

Funk, J. L., & Rogge, R. D. (2007). Testing the ruler with item response theory: Increasing precision of measurement for relationship satisfaction With the Couples Satisfaction Index. *Journal of Family Psychology*, *21*, 572–583.

Gardner, B. C., & Wampler, K. S. (2008). Uncovering dynamical properties in the emotional system of married couples. *Contemporary Family Therapy*, *30*, 111–126.

Gonzaga, G. C., Campos, B., & Bradbury, T. N. (2007). Similarity, convergence, and relationship satisfaction in dating and married couples. *Journal of Personality and Social Psychology*, *93*, 34–48.

Gottman, J. M. (1994). *What predicts divorce?* (3rd ed.). Hillsdale, NJ: Lawrence Erlbaum.

Gottman, J. M., Coan, J., Carrere, S., & Swanson, C. (1998). Predicting marital happiness and stability from newlywed interactions. *Journal of Marriage and the Family*, *60*, 5.

Gottman, J. M., Markman, H., & Notarius, C. (1977). The topography of marital conflict: Asequential analysis of verbal and nonverbal behavior. *Journal of Marriage and the*

Family, *39*, 461–477.

Gottman, J. M., Swanson, C., & Swanson, K. (2002). A general systems theory of marriage: Nonlinear difference equation modeling of marital interaction. *Personality and Social Psychology Review*, *6*, 326–340.

Greenberg, L. S., & Goldman, R. N. (2008). *Emotion-focused couples therapy: The dynamics of emotion, love, and power*. Washington, DC: APA.

Grossmann, I., Huynh, A. C., & Ellsworth, P. C. (2016). Emotional complexity: Clarifying definitions and cultural correlates. *Journal of Personality and Social Psychology*, *111*, 895–916.

Güngör, D., Karasawa, M., Boiger, M., Dincer, D., & Mesquita, B. (2014). Fitting in or sticking together: The prevalence and adaptivity of conformity, relatedness, and autonomy in Japan and Turkey. *Journal of Cross-Cultural Psychology*, *45*, 1374–1389.

Hadden, B. W., Baker, Z. G., & Knee, C. R. (2018). Let it go: Relationship autonomy predicts pro-relationship responses to partner transgressions. *Journal of Personality*, *86*, 868–887.

Hashimoto, H., & Yamagishi, T. (2016). Duality of independence and interdependence: An adaptationist perspective. *Asian Journal of Social Psychology*, *19*, 286–297.

Heine, S. J., Lehman, D. R., Markus, H. R., & Kitayama, S. (1999). Is there a universal need for positive self-regard? *Psychological Review*, *106*, 766–794.

Henrich, J., Heine, S. J., & Norenzayan, A. (2010). The weirdest people in the world? *Behavioral and Brain Sciences*, *33*, 61–83.

Hiew, D. N., Kim Halford, W., Van De Vijver, F. J. R., & Liu, S. (2016). Communication and relationship satisfaction in Chinese, western, and intercultural Chinese-western couples. *Journal of Family Psychology*, *30*, 193–202.

Hofstede, G. J. G., & Minkov, M. (2010). *Cultures and Organizations: Software of the mind* (3rd ed.). New York, NY: McGraw-Hill.

Hollenstein, T. (2013). *State space grids: Depicting dynamics across development*. New York, NY: Springer.

Johnson, S. M., & Greenberg, L. S. (1988). Relating process to outcome in marital therapy. *Journal of Marital and Family Therapy*, *14*, 175–183.

Johnston, M. M., & Finney, S. J. (2010). Measuring basic need satisfaction: Evaluating previous research and conducting new psychometric evaluations of the Basic Needs Satisfaction in General Scale. *Contemporary Educational Psychology*, *35*, 280–296.

Kagitçibasi, Ç. (2007). *Family, self, and human development: Theory and application* (2nd ed.). Mahwah, NJ: Lawrence Erlbaum.

Kasulis, T. P. (2002). *Intimacy or integrity: Philosophy and cultural difference*. Honolulu, HI: University of Hawaii Press.

Kim, H. S., & Markus, H. R. (1999). Deviance or uniqueness, harmony or conformity? A cultural analysis. *Journal of Personality and Social Psychology*, *77*, 785–800.

Kim, H. S., Sherman, D. K., & Taylor, S. E. (2008). Culture and social support. *American Psychologist*, *63*, 518–526.

Kirchner, A., Boiger, M., Uchida, Y., Norasakkunkit, V., Verduyn, P., & Mesquita, B. (2018). Humiliated fury is not universal: The co-occurrence of anger and shame in the U.S. and Japan. *Cognition & Emotion*, *32*, 1317–1328.

Kitayama, S. (2002). Culture and basic psychological processes – Toward a system view of culture: Comment on Oyserman et al. (2002). *Psychological Bulletin*, *128*, 89–96.

Kitayama, S., Markus, H. R., Matsumoto, H., & Norasakkunkit, V. (1997). Individual and

collective processes in the construction of the self: Self-enhancement in the United States and self-criticism in Japan. *Journal of Personality and Social Psychology*, *72*, 1245–1267.

Kitayama, S., Mesquita, B., & Karasawa, M. (2006). Cultural affordances and emotional experience: Socially engaging and disengaging emotions in Japan and the United States. *Journal of Personality and Social Psychology*, *91*, 890–903.

Kitayama, S., Park, H., Sevincer, A. T., Karasawa, M., & Uskul, A. K. (2009). A cultural task analysis of implicit independence: comparing North America, Western Europe, and East Asia. *Journal of Personality and Social Psychology*, *97*, 236–255.

Kito, M. (2005). Self-disclosure in romantic relationships and friendships among American and Japanese college students. *Journal of Social Psychology*, *145*, 127–140.

Lee, W. Y., Nakamura, S. I., Chung, M. J., Chun, Y. J., Fu, M., Liang, S. C., & Liu, C. L. (2013). Asian couples in negotiation: A mixed-method observational study of cultural variations across five asian regions. *Family Process*, *52*, 499–518.

Levenson, R. W., & Gottman, J. M. (1983). Marital interaction: Physiological linkage and affective exchange. *Journal of Personality and Social Psychology*, *45*, 587–597.

Lewis, M. D., Lamey, A. V, & Douglas, L. (1999). A new dynamic systems method for the analysis of early socioemotional development. *Developmental Science*, *24*, 457–475.

Ma-Kellams, C., & Blascovich, J. (2012). Inferring the emotions of friends versus strangers: The role of culture and self-construal. *Personality and Social Psychology Bulletin*, *38*, 933–945.

Markus, H. R., & Kitayama, S. (1991). Culture and the self: Implications for cognition, emotion, and motivation. *Psychological Review*, *98*, 224–253.

Markus, H. R., & Kitayama, S. (2010). Cultures and selves: A cycle of mutual constitution.

Perspectives on Psychological Science, *5*, 420–430.

Matsumoto, D. (1990). Cultural similarities and differences in display rules. *Motivation and Emotion*, *14*, 195–214.

Matsumoto, D., Nezlek, J. B., & Koopmann, B. (2007). Evidence for universality in phenomenological emotion response system coherence. *Emotion*, *7*, 57–67.

Mesquita, B. (1993). *Cultural variations in emotions: A comparative study of Dutch, Surinamese and Turkish people in the Netherlands (Unpublished doctoral dissertation)*. University of Amsterdam, Amsterdam, The Netherlands.

Miyamoto, Y., Uchida, Y., & Ellsworth, P. C. (2010). Culture and mixed emotions: co-occurrence of positive and negative emotions in Japan and the United States. *Emotion*, *10*, 404–415.

Morling, B., Kitayama, S., & Miyamoto, Y. (2002). Cultural practices emphasize influence in the United States and adjustment in Japan. *Personality and Social Psychology Bulletin*, *28*, 311–323.

Niiya, Y., Ellsworth, P. C., & Yamaguchi, S. (2006). Amae in Japan and the United States: An exploration of a "culturally unique" emotion. *Emotion*, *6*, 279–295.

Patterson, T. (2008). *In guten wie in schlechten Zeiten: Das Geheimnis glücklicher Beziehungen*. Hannover, Germany: humboldt.

Peluso, P. R., Liebovitch, L. S., Gottman, J. M., Norman, M. D., & Su, J. (2012). A mathematical model of psychotherapy: an investigation using dynamic non-linear equations to model the therapeutic relationship. *Psychotherapy Research : Journal of the Society for Psychotherapy Research*, *22*, 40–55.

Randall, A. K., Corkery, S. A., Duggi, D., Kamble, S. V., & Butler, E. A. (2011). "We're having a good (or bad) day": Differences in emotional synchrony in married couples in

the United States and India. *Family Science*, *2*, 203–211.

Rothbaum, F. M., Pott, M., Azuma, H., Miyake, K., & Weisz, J. R. (2000). The development of close relationships in Japan and the United States: Paths of symbiotic harmony and generative tension. *Child Development*, *71*, 1121–1142.

Ryff, C. D., & Keyes, C. L. (1995). The structure of psychological well-being revisited. *Journal of Personality and Social Psychology*, *69*, 719–727.

Sanford, K. (2007). Hard and soft emotion during conflict: Investigating married couples and other relationships. *Personal Relationships*, *14*, 65–90.

Schober, M. F., & Clark, H. H. (1989). Understanding by addressees and overhearers. *Cognitive Psychology*, *21*, 211–232.

Schoebi, D., Wang, Z., Ababkov, V., & Perrez, M. (2010). Affective interdependence in married couples' daily lives: are there cultural differences in partner effects of anger? *Family Science*, *1*, 83–92.

Schug, J., Yuki, M., & Maddux, W. (2010). Relational mobility explains between- and within-culture differences in self-disclosure to close friends. *Psychological Science*, *21*, 1471–1478.

Schwartz, S. H. (2003). A proposal for measuring value orientations across nations. In *Questionnaire Development Report of the European Social Survey*. Retrieved from http://www.europeansocialsurvey.org/docs/methodology/core_ess_questionnaire/

Spanier, G. B. (1976). Measuring dyadic adjustment: New scales for assessing the quality of marriage and similar dyads. *Journal of Marriage and the Family*, *38*, 15–28.

Tamir, M., Schwartz, S. H., Cieciuch, J., Riediger, M., Torres, C., Scollon, C., … Vishkin, A. (2016). Desired emotions across cultures: A value-based account. *Journal of Personality and Social Psychology*, *111*, 67–82.

Tamura, T., & Lau, A. (1992). Connectedness vs . separateness: Applicability of family therapy to Japanese families. *Family Process*, *31*, 319–340.

Tsai, J. L., & Levenson, R. W. (1997). Cultural influences on emotional responding: Chinese American and European American dating couples during interpersonal conflict. *Journal of Cross-Cultural Psychology*, *28*, 600–625.

Tsai, J. L., Levenson, R. W., & McCoy, K. (2006). Cultural and temperamental variation in emotional response. *Emotion*, *6*, 484–497.

Uchida, Y., & Kitayama, S. (2001). Development and validation of a sympathy scale. *The Japanese Journal of Psychology*, *72*, 275–282.

Uchida, Y., Kitayama, S., Mesquita, B., Reyes, J. A. S., & Morling, B. (2008). Is perceived emotional support beneficial? Well-being and health in independent and interdependent cultures. *Personality and Social Psychology Bulletin*, *34*, 741–754.

Verhofstadt, L. L., Buysse, A., Ickes, W., Davis, M., & Devoldre, I. (2008). Support provision in marriage: The role of emotional similarity and empathic accuracy. *Emotion*, *8*, 792–802.

Watson, D., Clark, L. A., & Tellegen, A. (1988). Development and validation of brief measures of positive and negative affect: *Journal of Personality and Social Psychology*, *47*, 1063–1070.

Weber, H. (2012). What is Social in a Social-Constructionist View on Emotion? *Emotion Review*, *4*, 234–235.

Yamagishi, T., & Yamagishi, M. (1994). Trust and commitment in the United States and Japan. *Motivation and Emotion*, *18*, 129–166.

Footnotes

[1]Other dimensions that may structure Belgian and Japanese relationships are, e.g., power (Hofstede & Minkov, 2010) or conformity / benevolence (Schwartz, 2003). However, it is noteworthy that authors from different disciplines have come to similar conclusions regarding Japanese and "Western" cultural contexts: Philosopher Thomas Kasulis (2002) distinguishes, e.g., between *integrity* (highlighting the boundedness of the person) and *intimacy* (defining people as being fundamentally connected). Similarly, family therapists Tamura and Lau (1992) distinguish between a process of *differentiation* and separateness in British families and of *integration* and connectedness in Japanese families.

[2]The preparatory research included U.S. participants, as the lab study was initially planned in three cultures. Due to logistical problems, the lab study was ultimately restricted to Japan and Belgium.

[3]We adapted the measure in two ways: First, we asked for support behavior rather than perceived support, because support behavior has been found to be closely linked with emotional processes in married couples (Verhofstadt, Buysse, Ickes, Davis, & Devoldre, 2008). Second, we specified the partner as the target of support rather than close others in general and excluded two items ("If you find out that they fell out of love, you sympathize with them from the bottom of your heart" and "If they have work they cannot finish by themselves, you are glad to help them") because they did not apply to our community sample.

[4]We also measured the following constructs, for which results are not being reported: PANAS (Watson et al., 1988), subjective wellbeing (Ryff & Keyes, 1995), Satisfaction with Life (Diener, Emmons, Larsen, & Griffin, 1985), Experiences in Close Relationships (Fraley, Waller, & Brennan, 2000), ESS Personal Values (Schwartz, 2003), and Self-Construal (Hashimoto & Yamagishi, 2016). We did not to report results for the Self-Construal scale in the present paper as reliability was low for multiple subscales in Belgium (.61 and .66).

However, we found that the Belgian and Japanese participants reported self-construals analogous to what Hashimoto & Yamagishi (2016) had reported for U.S. and Japanese participants (see also Supplemental Material). We had also included a 9-item version of the Sympathy Scale (Uchida & Kitayama, 2001). We discovered post hoc that the translation of two items from Japanese to Dutch was flawed. Dropping those items lead to a low Cronbach's alpha (.52 in Belgium and .68 in Japan); hence, we decided to exclude this scale.

[5]We excluded more segments due to ties in emotional maxima in the Japanese group (7.4% of all segments) than the Belgian group (5.4% of all segments), χ^2 (1) = 8.46, $p < 0.01$. Because ties may imply mixed emotions (that is, the experience of both a positive and negative emotion) and because mixed emotions may be more common and relevant in East Asian contexts (e.g., Grossmann, Huynh, & Ellsworth, 2016), we made sure that we did not systematically exclude relevant experiences for the Japanese participants. There were no cultural differences in the number of excluded segments involving a mixed emotion (combinations of any positive and any negative emotion > 0; Miyamoto, Uchida, & Ellsworth, 2010), $\chi^2(1) = .04$, $p = 0.83$.

[6]We are grateful to Jeanne Tsai, who, during the review process, observed that the most commonly discussed topics differed systematically between the two cultural groups. The fact that Belgian and Japanese discussed different kinds of topics does not appear to have affected our results: The two topic categories did not differ in the extent to which they elicited mutual states of empathy, $B = .88$, $SE = .67$, $p = .19$, or mutual states of anger, $B = -.85$, $SE = .78$, $p = .28$, as indicated by Poisson regressions with topic category (relationship issues = 0, concrete, pragmatic issues = 1) and cultural group (Belgium = 0, Japan = 1) entered as predictors; culture × topic category interactions were also not significant. Moreover, culture-level attractors were not more likely to be found in the culturally more common topic category compared to the less common one.

Table 1. Cultural differences in the frequency with which couples experienced culturally instrumental emotional states

Dyadic emotional state	Belgium (*n*=57)		Japan (*n*=76)				
	M	*SD*	*M*	*SD*	Exp*(B)*	*95% CI*	*p*
either partner annoyed	3.58	2.33	2.24	2.22	1.60	[1.31, 1.96]	<.001
either partner strong	3.61	2.81	3.12	3.57	1.16	[.96, 1.40]	.12
either partner embarrassed	1.25	1.24	2.20	1.90	.57	[.43, .75]	<.001
either partner empathy	3.37	2.95	5.53	2.89	.61	[.51, .72]	<.001

Note. Results from separate Poisson regressions with cultural group as the predictor (Belgium = 1, Japan = 0). The exponentiated beta coefficient Exp*(B)* indicates how many times more the respective emotional state was experienced by Belgian compared to Japanese couples and serves as an indication of effect size. 95% CI = 95% confidence interval for Exp(*B*).

Table 2. Distribution of culture-level attractors in Belgium and Japan.

Attractor state (male-female)	% Couples experiencing attractor state		Fisher's exact test (p-value)	Phi
	Belgium	Japan		
empathy-empathy	0.0	15.3	<.01	.27
annoyed-annoyed	9.1	0.0	.01	-.23
resigned-resigned	9.1	6.9	.75	-.04
afraid to hurt partner-resigned	9.1	2.8	.24	-.14
resigned-strong	7.3	4.2	.47	-.07
strong-resigned	7.3	2.8	.40	-.10
worried-guilty	7.3	0.0	.03	-.21

Note. Odds-ratios (and respective 95% confidence intervals) are not reported as they are infinite for the three significant results.

Table 3. Couples' emotional fit predicting relational benefits and ideals

	Belgium				Japan			
Dependent variable	*B*	*95% CI*	*t*	η_p^2	*B*	*95% CI*	*t*	η_p^2
Couple Satisfaction Index	43.25	[13.71, 72.80]	2.90**	.06	4.23	[-14.44, 22.91]	0.45	<.01
Emotional Support	1.42	[-0.13, 2.98]	1.81	.03	0.34	[-0.63, 1.32]	0.69	<.01
Autonomy	1.77	[0.34, 3.20]	2.45*	.05	0.61	[-0.29, 1.51]	1.34	.01
Relatedness	0.37	[-.84, 1.57]	0.60	<.01	0.34	[-0.42, 1.10]	0.89	<.01

Note. Separate linear regressions for each dependent variable with Fit, Culture, and Fit × Culture entered as predictors. Separate estimates for Fit in the Belgian and Japanese group were calculated by recoding the culture dummy variable. * $p < 0.05$; ** $p < 0.01$. 95% CI = 95% confidence interval for *B*.

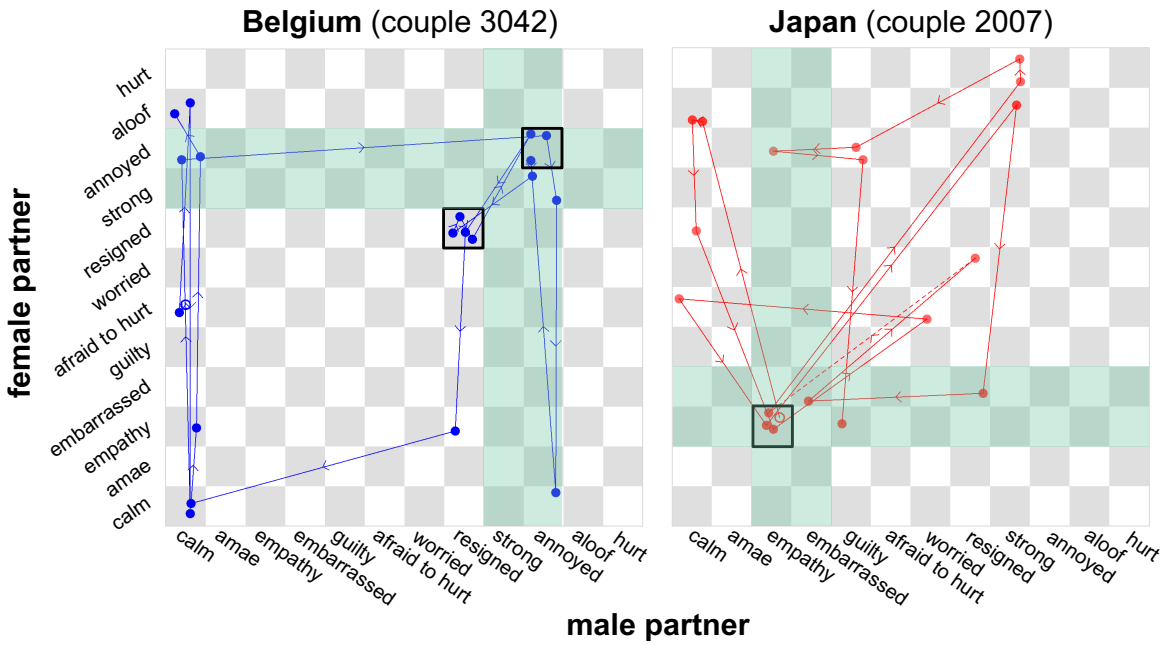

Figure 1. State space grid (SSG) of the emotional experience of a Belgian and a Japanese couple during a 10-minute disagreement interaction.

Note. Each dot represents the emotional maxima (person-centered) experienced by the couple during a 30-second segment. Regions in the SSG that we had predicted to be relatively more central in the respective culture are highlighted with shaded bars. The inductively derived attractor states for each couple are indicated with a bold frame. Amae = like my partner would indulge any of my requests (English translation of Dutch item); empathy = empathy for my partner; afraid to hurt = afraid to hurt my partner.

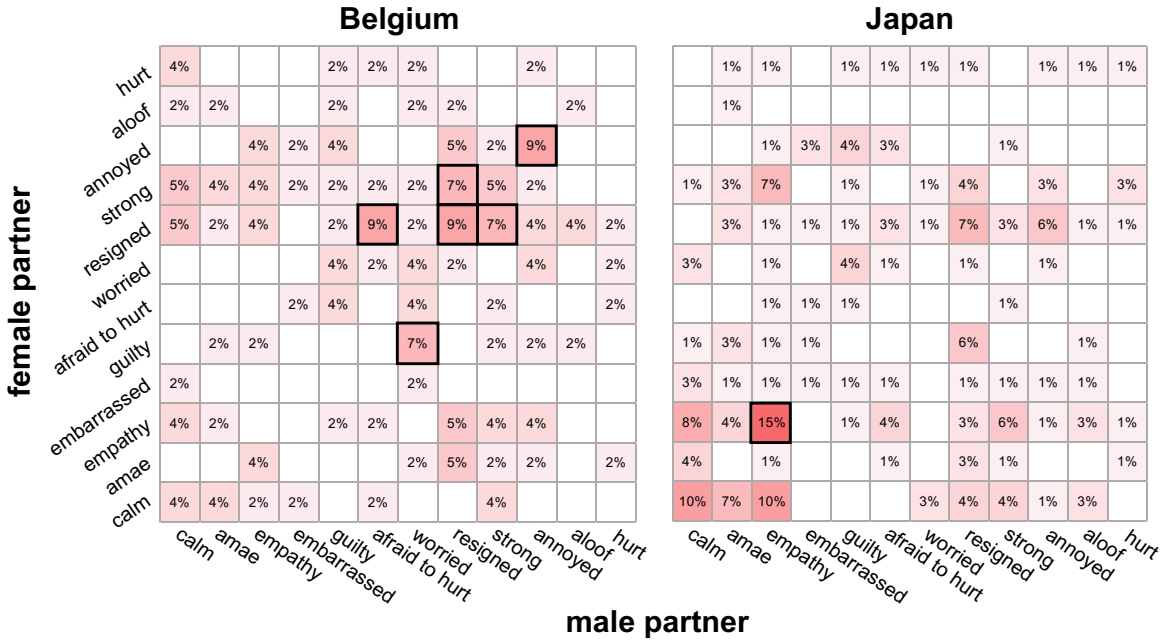

Figure 2. Distribution of empirically derived attractor states in Belgian and Japanese couples during disagreement interactions

Note. Cells show percentage of couples for whom the corresponding emotional state was an attractor state. Darker shades (of red) indicate higher percentages. If the identified attractors had been distributed evenly across all 144 potential emotional states, each attractor would have been experienced by 1.62% of Belgian and 1.58% of Japanese couples. Bold outlines show those emotional states that were culture-level attractors (based on a winnowing of the couple-level attractors for each cultural group). Amae = like my partner would indulge any of my requests (English translation of Dutch item); empathy = empathy for my partner; afraid to hurt = afraid to hurt my partner.