

**Empathic accuracy and cognitions during conflict:  
An in-depth analysis of understanding scores**

Hinnekens C.<sup>1</sup>, Sillars, A.<sup>2</sup>, Verhofstadt L. L.<sup>3</sup>, & Ickes, W.<sup>4</sup>

<sup>1</sup>Corresponding author: Céline Hinnekens, Ghent University

<sup>2</sup>Prof. dr. Alan Sillars, University of Montana

<sup>3</sup>Prof. dr. Lesley L. Verhofstadt, Ghent University

<sup>4</sup>Prof. dr. William Ickes, University of Texas

**ABSTRACT**

Empathic accuracy research indicates that partners achieve only moderate success at reading each other's thoughts. The current study identifies specific patterns of online thought that contribute to empathic inaccuracy during conflict interactions. Married/cohabiting partners completed a conflict interaction and reported their own thoughts during video-assisted recall of the interaction, while also inferring the thoughts of the other partner. Content analysis of these online thoughts revealed a high degree of mindfulness about the process of communication, along with a perspective bias, in which partners tended to construe their own communication as constructive and the other partner's communication as avoidant and confrontational. Specific mind reading errors linked to both the thematic content and affective tone of online thought predicted lower overall empathic accuracy.

*Key words.* Empathic accuracy, understanding, couple conflict, communication, online cognitions

*She thought...**...I don't understand his point of view.**... he ignores everything I say by talking about something else.**...my partner is exaggerating again.**He thinks she thought...**...about how she still feels not understood.**...Why should I keep talking if he isn't listening anyway?**...we are not talking about the heart of the matter.*

These quotes of partners' spontaneous thoughts reflect a crucial aspect of relationships, namely the aspect of understanding. But how well are partners able to understand each other? Previous research has tried to answer this question through the investigation of understanding as a function of specific relationship characteristics (e.g., duration, satisfaction; Thomas, Fletcher, & Lange, 1997) and in several relational contexts (e.g., support interactions; Verhofstadt et al., 2016). These studies indicate that partners achieve only poor to moderate success at inferring each other's thoughts and feelings. Research on empathic accuracy is illustrative. Empathic accuracy refers to, "...the extent to which [partners] understand each other's unspoken thoughts or feelings as they spontaneously occur during the course of their everyday interactions" (Ickes, 1993, p. 588). According to Ickes (2011), empathic accuracy generally averages no higher than 30-35%<sup>1</sup> for married partners. Other research finds even lower empathic accuracy among partners, averaging around 20% (Hinneken, Vanhee, De Schryver, Ickes, Verhofstadt, 2016; Verhofstadt, Buysse, Ickes, Davis, & Devoldre, 2008). Logically, this means that partners are 65-80% incorrect when inferring each other's thoughts and feelings. Therefore, some evident next

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<sup>1</sup> Empathic accuracy scores are computed as a ratio of the total accuracy points earned to the total accuracy points possible (multiplied by 100), so the scores have a theoretical range of 0 to 100%.

questions are: How do these misunderstandings occur? Why are partners “misreading” each other this much? These questions remain largely unanswered to date.

The current article explores these questions through in-depth analysis of partners’ online cognitions (i.e., spontaneous thoughts during a discussion). Specifically, this research examines participants’ own thoughts (i.e., *direct perspectives*) and their inferences about their partner’s thoughts (i.e., *meta-perspectives*), as reported during a post-conflict interaction recall task. We compare partners’ direct and meta-perspectives in terms of their thematic content and affective tone, in order to reveal specific forms of incongruence and misunderstanding that are characteristic of couple conflict. Further, we test to see whether certain mind reading errors can explain the rather low scores previously observed in studies of couples’ empathic accuracy.

### **Online Thought during Couple Conflict**

The current research follows in the tradition of conceptual and empirical models concerned with social knowledge and perspective-taking in interpersonal communication; most notably the concepts of interpersonal perception (Laing, Phillipsen, & Lee, 1966), co-orientation (McLeod & Chaffee, 1972), role-taking (Mead, 1934), uncertainty reduction (Berger & Bradac, 1982), and empathic accuracy (Ickes, 1993). These concepts do not represent a unified theory but reflect a common focus and assumptions. A core assumption is that people mutually orient to what others are thinking, feeling, and intending in order to coordinate action, acquire shared meanings and identities, and communicate competently (Berger & Bradac, 1982; Scheff, 1973). The models collectively foreground the significance of intersubjective understanding in communication; *understanding* being the congruence between meta-perspectives about the other with the other’s actual (direct) perspectives (Laing et al., 1966). McLeod and Chaffee (1973) argued that understanding (in their terms, *accuracy*) is “the first duty of communication” (p. 487), since we expect people to learn the other’s

perspective as they interact, even if they disagree. Further, understanding is often sufficient by itself to allow coordination with others; for example, by allowing one to anticipate another's reactions on sensitive issues and adapt accordingly. Although inferences about others are continually tested and refined during interactions (Mead, 1934; Scheff, 1973), areas of misunderstanding persist even in close, enduring relationships, in part, due to inferential biases that are characteristics of close relationships (Kenny & Acitelli, 2001; Sillars, 2011; Simpson, Orina, & Ickes, 2003).

Minor misunderstandings are inevitable in everyday interactions and are mostly inconsequential; however, understanding takes on increased significance during relational conflicts (Sillars, 2011). Disagreements and conflicts commonly occur in intimate relationships, and although conflict can be threatening, it might also be perceived as an opportunity to reconcile partners' different goals, opinions, or concerns (Hinneken et al., 2016). To effectively discuss and potentially reconcile such differences, we assume that partners must, first, adopt a shared focus and congruent definition of the issues contributing to conflict, and second, be able to take the other's perspective in order to understand his or her reasoning about these issues. The first process (shared focus and congruent framing of issues) might be a precondition for accurate understanding (McLeod & Chaffee, 1973). If two persons associate a topic with different issues and criteria for evaluating those issues, they are, in McLeod and Chaffee's (1973) terms, "on different wavelengths" and "communication cannot succeed" (p. 485). Numerous sources tie these two aspects of interpersonal perception to effective conflict management. First, individuals must focus on common issues and frame these issues in congruent terms to allow organized discussion and negotiation (e.g., Drake & Donohue, 1996). Second, understanding the other's perspective is essential to counteract perspective biases, promote emotional empathy and positivity, and bring commonalities into focus along with differences (e.g., Deutsch, 1973).

Because these processes unfold “in the moment” during couple communication, a method that can capture the *in vivo* stream (i.e., online stream) of the partners’ thought is essential to research on understanding during relationship conflict. One method involves the use of a video review task in which participants complete an interaction and afterwards report their thoughts and feelings during the interaction while observing a video of the discussion (Halford & Sanders, 1988; Ickes, Stinson, Bissonnette, & Garcia, 1990). The empathic accuracy paradigm, developed by Ickes and colleagues (1990), also requires participants to infer their partner’s thoughts and feelings, thereby simulating perspective-taking during communication. Video-assisted recall helps participants to retrieve their memory of events that occurred during the interaction and re-experience thoughts and feelings as they occurred spontaneously (Waldron & Cegala, 1992). Some evidence suggests that people experience the same physiological reactions during video review as they do during the actual interaction (Gottman & Levenson, 1988).

Empathic accuracy research generally yields a summary score for empathic accuracy, without considering the content of online thought. Studies by Sillars and colleagues extend research on online cognition and empathic accuracy by analyzing the specific content of thoughts and feelings reported during family conflict (Sillars, Roberts, Leonard, & Dun, 2000; Sillars, Smith, & Koerner, 2010). The Interaction Cognition Coding System (ICCS) developed from this research translates the complexity of online thoughts into meaningful hierarchical content categories. Previous research with the ICCS identified important characteristics inherent in online thoughts during conflict interactions and revealed sex differences that are described below (Sillars et al., 2000). Other research used the ICCS to reveal specific mind reading errors contributing to empathic inaccuracy in parent-adolescent conflict interactions (Sillars et al., 2010).

Our comments thus far highlight two goals for further research on online cognition during couple conflict. First, research should identify the congruence (shared focus) and incongruence (non-shared focus) of partners' direct perspectives, reflecting the issues they each think about and how they evaluate these issues. Second, partners' meta-perspectives should be explored to determine if partners are able to infer each other's thoughts accurately and to reveal specific mind reading errors that underlie empathic *inaccuracy*. We now turn to each of these research goals.

### **(In)Congruence of Partners' Direct Perspectives**

Of the two processes noted above (shared focus and perspective-taking), adopting a shared focus on conflict issues would seem to be a less demanding cognitive task. Nonetheless, research suggests that this process can prove challenging during couple conflict. Thomas et al. (1997) found that married partners maintained a shared focus in their online thoughts just over half the time during conflict interactions. Sillars et al. (2000) observed that couples were often, even routinely, thinking about different things during conflict (e.g., past events versus the immediate conversation) and/or thinking about these things in qualitatively different ways (e.g., *what* was said versus *how* it was said). In other words, partners can experience the same interaction quite differently, allocating their selective attention to different issues, background events, and aspects of ongoing communication (Sillars, 2011). We discuss these differences in perspective in terms of differences in the *thematic content* and *affective tone* of online thought.

**Thematic content.** Because a primary goal during couple conflict is to reconcile the partners' perspectives, the most obvious thoughts to examine are about the topic of disagreement itself. These thoughts address issues such as: "What is the conflict about? What is my opinion about it? What are my arguments pro and con?" However, as noted by Hocker and Wilmot (1991), the ostensible topic is often a cover for an underlying implicit relationship

issue. A basic axiom of communication is that all communication has both *content meaning* and *relationship meaning* (Watzlawick, Beavin-Bavelas, & Jackson, 1967), with the former referring to declarative content and the latter to relational states (e.g., respect, distance, antagonism) implied by that act of communication. This basic axiom suggests that partners will not only think about the explicit topic of disagreement (e.g., cleaning, work commitments, sex), or what Watzlawick and colleagues called the *content* level of communication, they will also think about the process of interaction and what it implies about the relationship.

A common difference in partner's perspectives during couple conflict, referred to as *content-process confusion* (Sillars et al., 2000), occurs when one partner interprets the interaction in terms of the ostensible content or topic, while the other partner thinks about the process of interaction and associated relational meanings. Sillars and colleagues (2000) found that content-process confusion was tied to sex, with men focusing more on content issues in the discussion and women more on the communication process and other, more relational cognitions. A possible explanation for this pattern is suggested by the concept of *relationship awareness* (Acitelli, 1992). Acitelli found that women engaged in more relationship-level thinking, and that this focus was tied to their satisfaction to a greater extent than it is for men. It is important to note, however, that Vangelisti, Middleton, and Ebersole (2013) found few sex differences in online thought using the same coding methods as Sillars et al. (2000).

In addition to content or relationship aspects of communication, partners' online thoughts could engage more abstract attributions that describe partner traits, evaluate the relationship, or identify causes of behavior (Vangelisti, Corbin, Lucchetti, & Sprague, 1999; Vangelisti, et al., 2013). The study of these processes suggests that much online thinking during conflict involves observing, interpreting, and evaluating intentions and behaviors, while also searching for causes of conflict. As noted in the next section, relationship



satisfaction is one of the greatest influences on attributions, such that dissatisfied individuals tend to make distress-maintaining attributions about the partner's negative behavior, whereas satisfied individuals make relationship-enhancing attributions (Fincham & Bradbury, 1989; Fletcher & Fincham, 1991; Grigg, Fletcher, & Fitness, 1989; Vangelisti et al., 1999).

**Affective tone.** As mentioned earlier, conflict can be perceived as threatening or distressing but also as an opportunity to find a new balance. These perceptions reflect the overall affective tone of online thought. Sentiment override theory suggests that the general feeling of relationship (dis)satisfaction has a significant impact on situational perceptions and emotions (e.g., Fincham, Garnier, Gano-Phillips, & Osborne, 1995; Verhofstadt, Buysse, Ickes, De Clercq, & Peene, 2005; Weiss, 1980). More specifically, a general perception of the relationship develops over time and establishes a cognitive relationship schema, which in turn influences thoughts and feelings during interaction in a self-confirming fashion (e.g., Fincham, 2001; Holtzworth-Munroe & Jacobson, 1985).

Supporting the assumption of sentiment override, studies of online cognition have found that relationship dissatisfaction is associated with angry, frustrated, and blaming thoughts and also with pessimistic thoughts about the course and resolution of conflict (e.g., Sillars et al., 2000; Vangelisti et al., 2013). Conflict severity – in the current study operationalized as perceived threat during conflict interaction – is associated with similar negative thoughts. In contrast, satisfaction is more likely to be associated with “issue-oriented” thoughts concerning the topic of disagreement, suggesting that satisfied partners maintain a more neutral and objective tone during conflict (Sillars et al., 2000; Vangelisti et al., 2013). Further, satisfied partners also report more thoughts expressing positive expectations to resolve the disagreement (e.g., belief that the partner is understanding, suggestions about solutions; Fletcher & Thomas, 2000; Sillars et al., 2000; Verhofstadt, Buysse, Rosseel, & Peene, 2006).

Sillars and colleagues (2000) observed parallels between the affective tone of online thought and the familiar actor-observer bias in attributions. That is, individuals reported more positive thoughts about their own communication (i.e., seeing it as constructive engagement), but more often attributed avoidant and confrontational acts to their partner. These results suggest that self-serving cognitive tendencies can influence how ambiguous cues or behaviors are interpreted as positive or negative communication (Sillars et al., 2000).

Studies reviewed thus far identify common differences in partners' direct perspectives during couple conflict, as revealed by online thought. These differences reflect incongruent definition of issues (i.e., what's important to consider, what the conflict is "really" about) and meanings assigned to actions during conflict (e.g., who is being cooperative or competitive). Next, we consider whether partners adjust for differences in direct perspectives by anticipating what the partner is thinking (i.e., empathic accuracy).

### **Empathic Accuracy**

Typically, studies reveal low-to-moderate overall empathic accuracy in couple interactions (e.g., Ickes et al., 1990; Simpson et al., 2011; Verhofstadt, et al., 2008) and scores can drop even further during threatening interactions, such as disagreements (Simpson, Oriña, & Ickes, 2003). To reach a certain level of accuracy, interaction partners need to adopt comparable *interpretive frames* (Ickes, 2003). As noted, frame incompatibilities are a common feature of couple conflict. When interpretive frames do not spontaneously align, anticipating and adjusting for frame incompatibilities can require significant cognitive effort. Yet, research on online cognition during couple conflict finds that people do not often make a conscious effort to understand the partner's perspective, without being prompted to do so by the researcher (Sillars et al., 2000).

Sillars and colleagues (2000) suggested that basic features of communication during conflict inhibit conscious perspective-taking and contribute to differences in interpretive

frames. Specifically, they proposed that: (1) *Selective attention* is an inherent feature of communication and is necessary to conserve cognitive resources within a complex and ambiguous stimulus field. (2) Participation in interaction requires *continuous interpretation* of intentions that give meaning to communication. (3) Such *inferences are made routinely and automatically* to keep up with the pace of interaction and thus, are mostly snap judgments that go unquestioned. (4) Selective attention and inference are further encouraged by the *disorderly nature of communication* during serious relationship conflict (e.g., the presence of multiple issues, and the tendency to lose focus and engage in past disagreements). (5) *Emotions* related to conflict and the general *affective atmosphere* influence the availability of executive functions and bias online cognitions.

Given the low-to-moderate scores for empathic accuracy observed in past studies and the complex factors influencing these scores, there is a need for further research on factors affecting empathic inaccuracy, including specific mind reading errors during couple conflict.

### **The Present Study**

The first goal of the current study is to examine descriptive characteristics of online thoughts and replicate associations with sex, relationship satisfaction, and conflict severity/threat that have been found in previous research. The second goal is to identify specific mind reading errors, reflected in discrepancies between direct and meta-perspectives, that relate to empathic accuracy.

**Content of one's own thoughts (direct perspectives).** First, we offer predictions about the occurrence of certain types of online thoughts. In research by Sillars et al. (2000) and Vangelisti et al. (2013), partners showed considerable mindfulness about the process of interaction, reflected in their thinking about the immediate interaction, including inferences about communicative acts or intentions and evaluations of communication. These process thoughts constituted the most frequently used coding category in previous studies. Thus, our

first hypothesis predicts that both partners will report more process thoughts relative to thoughts pertaining to other categories (*H1*). Further, the research of Sillars and colleagues (2000) found a tendency in online thought to attribute positive conflict acts to the self and negative conflict acts/intentions to the partner. Thus, our second hypothesis predicts that individuals will report more thoughts attributing constructive communication to self than to their partner (*H2a*), and more thoughts attributing confrontation and avoidance to the partner versus self (*H2b*). Regarding potential sex differences, we expect that men will report more thoughts concerning content issues in conflict than women (*H3a*), whereas women will report more thoughts about the communication process and other relational states (i.e., person and process appraisal) than men (*H3b*).

Following past studies (Sillars et al., 2000; Vangelisti et al., 2013) we expect the affective tone of online thoughts to be associated with conflict severity and relationship satisfaction. We operationalize conflict severity as perceived threat experienced during the interactions – as conflicts intensify, they increasingly threaten basic individual and relational goals (Hocker & Wilmot, 1991). Thus, we predict that partners who perceive interaction to be less threatening will report more positive thoughts and fewer negative thoughts than partners who perceive greater threat (*H4a*). Further, from attribution research and the construct of sentiment override, we assume that the affective tone of thoughts reflects relationship satisfaction, such that partners who score higher on relationship satisfaction will report more positive thoughts and fewer negative thoughts than less satisfied partners (*H4b*).

**Comparison of own versus inferred thoughts.** In line with predictions concerning direct perspectives, the fifth hypothesis predicts that men will overestimate the incidence of content-focused thoughts (called *issue appraisal*; *H5a*) and underestimate the incidence of relationship-focused thoughts (called *person appraisal* and *process appraisal*; *H5b*) by women. Conversely, we expect women to underestimate the incidence of content-focused

thoughts (*H5c*) and overestimate the incidence of relationship-focused thoughts by men (*H5d*).

**Mind reading errors and empathic accuracy.** Last, we offer predictions about the discrepancy between the participants' actual thoughts and the thoughts that are inferred by their partner. Generally, we expect specific mind reading errors by the perceiver to be reflected in their overall understanding, such that the larger the discrepancy between the target's direct thoughts (with respect to thematic content and affective tone) and the perceiver's inferred thoughts, the lower the perceiver's empathic accuracy (*H6*).

## METHOD

### Participants

A sample of 158 cohabiting/married heterosexual couples (316 individuals) was recruited as part of an observational study called the "[First author's institution] Couple Study." Couples were recruited for the study through posters and social media notices and through the acquaintance networks of master's level clinical psychology students.

Participation was limited to Dutch-speaking couples who had been together in a heterosexual relationship for at least one year and married or cohabiting for at least six months. Three couples in the original sample were later excluded due to missing questionnaire responses or questionnaire responses that revealed failure to meet the inclusion criteria.

The couples had been together at the time of the study for an average of 12.15 years ( $SD = 11.76$ ). The men averaged 36.29 years of age ( $SD = 14.05$ ) and the women averaged 34.21 years ( $SD = 13.60$ ) (age range = 19 to 76 years). The sample included 37 laborers (11.9%), 140 office workers (45.5%), 17 executives (5.7%), 16 self-employed individuals (5.2%), 61 students (19.7%), 3 stay-at-home mothers or fathers (1.0%), 11 individuals who were unemployed (3.5%), 16 who were retired (5.2%), 7 who were currently unable to work (2.3%), and 2 individuals whose profession was unknown.

## Procedure

Couples who expressed an interest in participating were visited at home, where they were provided an orientation and evaluated to determine if they met inclusion criteria. The partners received instructions to independently complete online questionnaires that measured relationship satisfaction and other variables not relevant to the current report.

After both partners completed the questionnaires, they were contacted by telephone to schedule an appointment to either come to a research laboratory or have an observation session at home. The couples were asked to participate in a task in which they engaged in a video-recorded discussion and subsequent video-review task. Each couple received monetary compensation of €20 for completing the questionnaire and an additional €20 for completing the observational session. Participants were informed they could withdraw from the investigation at any time; however, all couples completed both phases of the research. The study was approved by the ethical committee of the [First author's institution].

**Relationship satisfaction.** Relationship satisfaction was assessed with the Dyadic Adjustment Scale (DAS, Spanier, 1976; Dutch version by Buysse & Heene, 1997). The questionnaire consists of 32 items over 4 subscales (*dyadic consensus*, *dyadic satisfaction*, *dyadic cohesion*, and *affective expression*). The total scale scores, summed across subscales, averaged 119.31 ( $SD = 12.87$ ) for men and 117.91 ( $SD = 13.34$ ) for women. DAS norms (Spanier, 1976) indicate an average satisfaction score of 114/115 for a married sample, suggesting that our sample was comparable to an average group of married couples. The DAS demonstrated strong internal consistency in this sample (Cronbach's  $\alpha_{Men} = .91$ ;  $\alpha_{Women} = .90$ ).

**Interaction task.** In the observation session, the couples completed a discussion task similar to those used in previous studies of marital conflict (e.g., Fletcher & Thomas, 2000; Simpson et al., 2003). Couples who chose to come to the university were escorted to a laboratory that was furnished to resemble a living room but equipped to allow video-recording

of the conflict discussion ( $n = 114$ ). In those cases in which the interaction task was conducted at the couples' home, the partners were seated in a quiet room where we installed a small portable camera ( $n = 41$ ). In both settings, the recording took place with the couple's knowledge and written consent. Subsequent analyses revealed no differences between couples recorded in the laboratory versus home in relationship satisfaction, empathic accuracy, or perceived threat associated with thoughts experienced during the interactions.

Prior to the discussion, the partners were separately asked to identify, from a list of common conflict topics (e.g., household chores, personal characteristics, education of the children, intimacy), an issue that they considered to be an important disagreement in their relationship and that they would like to change. The conflict issue selected by one partner was then randomly chosen as the topic for subsequent discussion. Couples were asked to discuss the topic together and try to come to a solution, while researchers waited in an adjacent room. Instructions stressed that the couple should continue to talk about the topic for 11 minutes, at which point researchers would knock on the door to end the interaction. The partner who selected the issue introduced it to the other partner. The partners were encouraged to act as they would do when discussing similar problems without a camera present. All couples continued to discuss the conflict topic until interrupted by researchers.

**Video-review task.** Immediately after the interaction task, the partners individually completed a video review task similar to that used in other studies (e.g., Ickes et al., 1990; Verhofstadt et al., 2016). The partners were separated and asked to re-experience their interaction while they viewed the recorded discussion on a laptop. The video presentation was controlled by interactive software developed for the research [Authors' reference]. Every 90 seconds, the video paused and instructions appeared on the screen. Each partner was asked to type the specific thought and feeling that he or she had at that point in the interaction into a blank box that appeared on an interactive survey form, and also to rate how threatening the

thought and feeling was to themselves, their partner, and the relationship. Next, they were asked to infer the specific content of their partner's thoughts and feelings at that point in the interaction, type this inference into a box on the survey form, and rate how threatening the inferred thoughts and feelings were to themselves, their partner, and the relationship. The ratings of threat potential were recorded on Likert-type scales that ranged from 0 = *not threatening* to 7 = *very threatening*. The instructions emphasized that the reported thoughts and feelings should be based on the 10-second segment of interaction that immediately preceded the pause in the video. The software gave participants the option to re-observe the ten seconds of interaction that occurred before each pause. Threat ratings were averaged across subscales and interactions to measure perceived threat of the individual's own thoughts or direct perspectives ( $M = 1.84$ ,  $SD = .87$ , Cronbach's  $\alpha = .92$  for men;  $M = 2.03$ ,  $SD = .87$ ,  $\alpha = .93$  for women) and for inferred partner thoughts or meta-perspectives ( $M = 1.92$ ,  $SD = .95$ ,  $\alpha = .92$  for men;  $M = 2.02$ ,  $SD = 1.04$ ,  $\alpha = .94$  for women).

### **Coding**

**Empathic accuracy.** Four independent judges rated the degree of similarity between the thoughts that one partner reported (their direct perspective) and the corresponding inferred thoughts that the other partner recorded (the partner's meta-perspective). Following Ickes and colleagues (1990), similarity was rated using a 3-point scale on which 0 = *different content from the actual thought or feeling*; 1 = *similar, but not the same, content as the actual thought or feeling*; and 2 = *essentially the same content as the actual thought or feeling*. Overall empathic accuracy scores were then computed as a percentage score that was computed as the number of "accuracy points" earned divided by the total "accuracy points" available and multiplied by 100. The empathic accuracy coding had acceptable reliability for both the men ( $ICC = .69$ ) and the women ( $ICC = .71$ ) in the sample. Therefore, the scores of the four raters



were averaged. Empathic accuracy averaged 20.33 ( $SD = 11.70$ ) for men and 19.27 ( $SD = 11.66$ ) for women.

**Thought content.** Thoughts reported during the video review session were coded using the ICCS, a system that was inductively derived from recall sessions with married partners watching their own conflict interactions (Sillars et al., 2000). We used a revised version of the coding system developed for research on parent-adolescent interaction (Sillars & Smith, 2014). This version of the ICCS was simplified and adapted to enable the comparison of direct (own thoughts) and meta-perspectives (inferred partner thoughts), making it ideally suited to gain further insight into the process of empathic accuracy.

The ICCS coding system classifies thoughts (both direct and meta-perspectives) into 26 specific categories nested within five main categories (see Appendix A for examples). The main categories are as follows: (1) *Emotion* includes thoughts that contain a direct reference to an emotional state. (2) *Issue appraisal* includes thoughts referring to the literal topic of discussion; that is, facts, ideas or opinions concerning the ostensible issue being discussed and therefore reflects the “content” level of interaction. (3) *Process appraisal* includes thoughts about communicative acts or intentions within the immediate interaction, along with evaluations of the communication process. (4) *Person appraisal* includes thoughts conveying abstract evaluations about the self or the partner, often through trait attributions and attribution of responsibility for the conflict. (5) *Other/Uncodable* thoughts include thoughts that are unintelligible, not relevant to the conflict, or do not fit within other categories. In addition, some specific codes are followed by an actor code: (a) *self*, (b) *partner*, or (c) *dyad*, indicating the object of the thought (e.g., “I understand” is coded as *self*; “She is getting frustrated” is coded as *partner*; “We are a strong couple” is coded as *dyad*). For purposes unrelated to the current report, the partners were prompted to report thoughts and feelings

separately during the video review. Because of the current study's focus on thoughts, the emotion codes are excluded from analyses to which they are not relevant.

The coding procedure followed three steps. First, each thought entry (direct or meta-perspective) recorded at each stop of the video tape was divided into thought units, referring to a segment expressing a single thought that is understandable independent of adjoining comments (e.g., "I understand why he wants to talk about this,/however, I don't want to talk about it again," would be two thought units). Second, each thought unit was assigned to one of the five main categories according to the thematic content of that unit. Third, a specific code with an additional actor code (if called for by the coding scheme) was assigned. The data were coded by a team of three coders. Two primary coders each coded half of the data. To improve consistency, the primary coders marked examples they found to be ambiguous and a third coder, designated as the "expert coder," independently coded these ambiguous examples. Disagreements were then resolved through discussion. Later, the expert coder independently re-coded approximately 6% of the data (10 couples) to check unitizing and categorizing reliability. The coders agreed on 95% of unitizing decisions for 280 thought entries, with Guetzkow's  $U = .01$  indicating strong unitizing reliability (Guetzkow, 1950). Coders agreed 76% on placement of units into five main categories of the ICCS ( $\kappa = .64$ ) and agreed 57% ( $\kappa = .54$ ) on placement of units into the full set of 42 codes (subcategories and actor codes), which represents "moderate" to "substantial" agreement according to Landis and Koch (1977) and "fair to good" agreement according to Fleiss (1981).

## RESULTS

### Descriptives

**Direct perspectives.** The first aim of the study was to examine descriptive characteristics of online thoughts and replicate patterns found in previous research using a Dutch-speaking sample. The percentages of specific codes and main categories are reported

for men and women in Table 1. Although the data were coded according to five main categories, the category of *emotions* is excluded from Table 1. As noted above, our procedure required the participants to report emotions separately from their thoughts; therefore, only a minimal percentage of spontaneously reported thoughts referenced emotions (1.5%).

**Table 1***Descriptive Statistics for Direct Perspectives*

	<i>M</i> <sub>Men</sub> ( <i>SD</i> )	<i>M</i> <sub>Women</sub> ( <i>SD</i> )
<b>Person Appraisal</b>	<b>12.95 (17.44)</b>	<b>14.28 (16.63)</b>
Positive Appraisal		
<i>Self</i>	0.68 (3.27)	0.27 (1.70)
<i>Partner</i>	0.83 (3.78)	1.01 (3.50)
<i>Dyad</i>	0.77 (3.44)	0.93 (3.41)
Benign Attribution	0.73 (4.25)	0.91 (3.60)
Admission	4.64 (10.56)	2.36 (5.54)
Denial & Justification	1.82 (5.34)	2.67 (7.36)
Complaint	2.13 (7.09)	3.78 (9.70)
Imperative	1.35 (4.58)	2.37 (6.00)
<b>Issue Appraisal</b>	<b>31.73 (22.64)</b>	<b>32.29 (21.81)</b>
Elaboration	12.85 (15.26)	10.98 (13.30)
Likes	0.47 (2.38)	0.50 (2.53)
Dislikes	1.23 (4.56)	2.71 (7.08)
Agreement	7.07 (11.37)	6.58 (9.38)
Disagreement	4.17 (8.30)	5.08 (9.28)
Solution	5.78 (9.46)	6.34 (11.26)
<b>Process Appraisal</b>	<b>49.10 (26.18)</b>	<b>47.24 (24.46)</b>
Constructive Engagement		
<i>Self</i>	10.92 (15.40)	6.06 (10.92)
<i>Partner</i>	0.45 (2.47)	1.11 (4.26)
<i>Dyad</i>	2.13 (6.25)	1.62 (6.31)
Avoidance & Detachment		
<i>Self</i>	2.14 (5.96)	3.04 (7.00)
<i>Partner</i>	0.73 (3.17)	1.80 (5.89)

<i>Dyad</i>	0.28 (1.97)	0.18 (1.62)
Confrontation		
<i>Self</i>	3.52 (8.57)	3.65 (7.79)
<i>Partner</i>	3.10 (8.53)	2.33 (6.72)
<i>Dyad</i>	0.96 (5.06)	0.79 (3.19)
Understanding		
<i>Self</i>	2.29 (7.72)	1.74 (4.46)
<i>Partner</i>	1.63 (5.38)	2.21 (6.03)
<i>Dyad</i>	0.95 (4.18)	0.70 (3.43)
Misunderstanding & Confusion		
<i>Self</i>	2.69 (6.37)	4.40 (10.40)
<i>Partner</i>	1.33 (4.43)	2.75 (7.79)
<i>Dyad</i>	0.00 (0.00)	0.00 (0.00)
Foreboding & Impasse	2.72 (6.48)	3.35 (7.64)
Resolution	5.60 (11.04)	4.31 (9.33)
General Process	7.82 (13.62)	7.31 (14.31)
<b>Other/Uncodable</b>	<b>4.65 (13.52)</b>	<b>4.70 (15.62)</b>
Don't Know	0.08 (1.00)	0.09 (1.15)
Thinking Same as What was Said	0.09 (1.15)	0.17 (1.52)
Uncodable	4.48 (13.49)	4.43 (15.45)

*Note.* Direct perspectives = “I thought...” Numbers represent means and standard deviations for the percentage of each code. Percentages do not sum to 100% because the category “emotions” and the corresponding specific codes are excluded.

The results show that the category of process appraisal, reflecting mindfulness about the communication process, represented almost half of the online thoughts. By comparison, about one-third of thoughts were coded as issue appraisal, representing thoughts about content issues in the discussion, and 13-14% were person appraisals, representing personal evaluations and attributions. These results confirm the first hypothesis (*H1*), as process

thoughts indeed represented the largest percentage of thoughts reported relative to those in other content categories.

Second, we expected individuals to attribute more favorable conflict strategies to self and more negative conflict strategies to the partner (*H2*). Because there were more self-directed thoughts than partner-directed thoughts overall, we calculated percentages for each strategy code separately for self-directed versus partner-directed thoughts. In addition, these percentages used only those units that received one of the three conflict strategy codes (constructive engagement, etc.). The results supported *H2*: When individuals thought about their own communication, they were more likely to see the interaction as constructive engagement than when thinking about the partner's communication (men: 62.62% vs. 12.75%; women: 44.93% vs. 23.49%; *H2a*). Logically, as the percentages sum to 100%, when individuals thought about their partner's communication, they were more likely to see the interaction as confrontation or avoidance/detachment than when thinking about their own communication (men: 87.25% vs. 37.38%; women: 76.51% vs. 55.08%; *H2b*).

**Sex differences.** Our third hypothesis predicted that men would have a greater content-focus and women a greater relationship-focus. The results did not support this hypothesis, as there was no overall sex difference in the percentage of issue appraisal thoughts by men versus women (*H3a*),  $t(154) = -.24, p = .814$ , or in person appraisal,  $t(154) = -.74, p = .460$ , and process appraisal thoughts (*H3b*),  $t(154) = .65, p = .514$ . However, an unexpected sex difference emerged regarding the affective tone of direct perspectives. The affective tone represented in the definitions of specific codes allows collapsing codes into affective categories instead of categories based on the thematic content (see Appendix A). Men reported far more positive thoughts ( $M = 44.93\%$ ;  $SD = 25.71$ ) than reported by women ( $M = 36.64\%$ ,  $SD = 24.27$ ),  $t(154) = 3.25, p = .001$ , (Cohen's  $d = .33$ ), whereas women reported more negative thoughts ( $M = 38.89\%$ ;  $SD = 28.52$ ) than did men ( $M = 28.18\%$ ;  $SD = 25.09$ ),

$t(154)=4.34, p = .000, d = .40$ . The number of thoughts without a clear positive or negative tone (i.e., neutral category) was similar for men ( $M = 20.68\%$ ,  $SD = 18.49$ ) and women ( $M = 18.29\%$ ,  $SD = 19.12$ ),  $t(154)=1.14, p = .254$ . We also examined sex differences in specific positive and negative codes, excluding very infrequent codes (less than 2% of direct perspectives for both men and women), and applying Holm-Bonferroni corrections for post hoc tests to the remaining positive and negative codes. There was one significant difference in specific codes according to post hoc tests – men more often saw themselves as constructively engaged in the discussion than did women,  $t(154) = 3.30, p = .001, d = .27$ .

Table 2 reports results concerning the fourth hypothesis. The first part of the hypothesis (*H4a*) was confirmed, as perceived threat correlated negatively with positive thoughts and correlated positively with negative thoughts for both men and women. This pattern of correlations held for the affective tone of the individual's own thoughts (direct perspectives) and inferred partner thoughts (meta-perspectives). Additionally, the percent of neutral thoughts negatively correlated with perceived threat for women. The second part of the fourth hypothesis (*H4b*) was also confirmed, as the affective tone of the thoughts of both partners correlated with relationship satisfaction. Table 2 shows an obvious pattern, in that positive thoughts correlated positively with relationship satisfaction, and negative thoughts correlated negatively with satisfaction. The pattern again applied to direct and meta-perspective thoughts.

**Table 2**

*Pearson Correlations between Affective Tone of Direct and Meta-perspective Thoughts, Relationship Satisfaction and Perceived Threat*

	Relationship Satisfaction		Perceived Threat	
	Men	Women	Men	Women
<b>Positive affect</b>				
Direct perspectives	.35**	.24**	-.29**	-.39**
Meta-perspectives	.30**	.26**	-.34**	-.31**
<b>Neutral affect</b>				
Direct perspectives	.03	.12	-.03	-.22**
Meta-perspectives	.06	.05	-.04	-.27**
<b>Negative affect</b>				
Direct perspectives	-.35**	-.29**	.31**	.56**
Meta-perspectives	-.31**	-.23**	.45**	.55**

*Note.* \*  $p \leq .05$ , \*\*  $p \leq .01$ . For direct perspectives, the table shows correlations between affective tone and perceived threat of the individual's own thoughts. For meta-perspectives, the table shows correlations between affective tone and perceived threat of inferred partner thoughts.

### **Comparisons of Direct and Meta-Perspectives**

The second aim of the current study was to uncover specific mind reading errors reflected in perceivers' under or overestimation of the target's actual thoughts. The fifth hypothesis predicted sex-based discrepancies between the thematic content of meta-perspectives versus direct perspectives. The results did not confirm these predictions. Men did not overestimate issue appraisal thoughts by women,  $t(154) = .03$ ,  $p = .980$ , as anticipated (*H5a*), nor did men underestimate their female partners' person appraisal,  $t(154) = .09$ ,  $p = .926$ , or process appraisal,  $t(154) = -1.05$ ,  $p = .294$  (*H5b*). Further, women did not underestimate issue appraisal by men as anticipated,  $t(154) = .79$ ,  $p = .429$ , (*H5c*). One sex difference did approach significance in the hypothesized direction (*H5d*), with women overestimating the incidence of men's person appraisal thoughts,  $t(154) = 1.69$ ,  $p = .093$ , (Cohen's)  $d = .17$ . However, *H5d* also predicted that women would overestimate men's

process appraisal thoughts. Instead, women *underestimated* process-appraisal by men,  $t(154) = -2.17, p = .031, d = -.24$ .

Although we did not offer predictions, we also examined differences in the affective tone of direct and meta-perspectives. The results showed a pattern of errors by women when they inferred the direct perspectives of their male partners. Specifically, the women underestimated their partner's positive thoughts (35.09% of female meta-perspectives vs. 44.93% of male direct perspectives),  $t(154) = -4.12, p = .000, d = -.40$ , and overestimated men's negative thoughts (36.44% vs. 28.18%),  $t(154) = 3.66, p = .000, d = .32$ . The incidence of neutral thoughts inferred by women did not differ from their male partner's actual neutral thoughts,  $t(154) = .09, p = .927$ . When comparing specific codes, we again excluded very infrequent codes (less than 2% for both direct and meta-perspectives) and used Holm-Bonferroni corrections to alpha for the remaining positive and negative codes. Results indicated that women overestimated *denial and justification* by men (4.68% of female meta-perspectives vs. 1.82% of male direct perspectives),  $t(154) = 3.45, p = .001, d = .36$ , and underestimated men's positive thoughts and intentions toward the interaction. Women underestimated the extent that men saw themselves as constructively engaged (5.75% vs. 10.92%),  $t(154) = -3.62, p = .000, d = -.38$ , and saw the interaction as moving toward *resolution* (2.25% vs. 5.60%),  $t(154) = -3.44, p = .001, d = -.37$ .

Of note, men did not make comparable errors when inferring the thoughts of women. There were no significant differences between male meta-perspectives and female direct perspectives when comparing positive thoughts,  $t(154) = -1.54, p = .125$ , negative thoughts,  $t(154) = -1.27, p = .207$ , or neutral thoughts,  $t(154) = 1.76, p = .080$ .

Overall, these results suggest that men had an accurate perception of the overall affective tone of women's thoughts during a conflict discussion; whereas women imputed a



more negative and defensive outlook to their male partners than suggested by the men's actual thoughts.

We performed follow-up analyses to determine if sex differences in mind reading errors were independent of effects due to relationship satisfaction and perceived threat. First, we computed scores representing over-estimation of negative and positive thoughts by subtracting partner direct perspective scores from the perceiver's meta-perspective scores. For example, a female partner's over-estimation her male partner's negative thoughts was the percentage of negative thoughts she assigned to him minus negative thoughts he reported for self. Multi-level modeling, performed with mixed-model ANOVA, assessed sex differences in overestimation of negativity/positivity, controlling for satisfaction and threat. The analysis treated scores as repeated measures variables nested within dyads to control for interdependence between partners (Kenny, Kashy, & Cook, 2006). Model specification followed the two-intercept strategy (Kenny et al., 2006) to estimate a separate intercept for males and females. Effects of sex and interactions of sex with satisfaction and threat were estimated by specifying custom hypothesis tests in SPSS software (see SPSS, Inc., n.d.). Initial exploratory models found no significant interactions, so re-specified models included only main effects.

The first model assessed effects of sex, satisfaction and perceived threat (of meta-perspective thoughts) on over-estimation of partner negative thoughts. Table 3 shows fixed effects from the first model. Table 3 reveals significant, independent effects of sex and threat on overestimation of partner negativity. The significant positive intercept for women indicates that women perceived men to have more negative thoughts than men reported. (A parameter value close to zero would suggest no difference between female meta and male direct perspectives.) The main effect for sex indicates a significant difference between men and women in the tendency to over-estimate partner negativity. The significant, positive effect of

threat indicates that both partners overestimated the other's negative thoughts when they felt more threatened. Satisfaction had null effects on overestimation of partner negative thoughts, despite correlating with negativity of meta-perspective thoughts (see Table 2). Although dissatisfied individuals read negativity in the partner's thoughts, as suggested by correlations, they did so in a way that accurately reflected negativity of the partner's actual thoughts.

**Table 3**

*Fixed Effects of Multi-level Model Predicting Overestimation of Partner Negative Thoughts (Perceiver Meta Minus Partner Direct) from Sex, Relationship Satisfaction, and Perceived Threat*

Fixed Effects	<i>B</i>	<i>SE</i>	<i>df</i>	<i>t</i>	<i>p</i>
Intercept -- Men	-2.42	2.43	152.40	-.99	.322
Intercept -- Women	7.82	2.19	150.11	3.56	.000
Sex	10.23	3.78	152.31	2.71	.008
Relationships Satisfaction	1.04	1.52	209.98	.69	.493
Threat	3.84	1.55	222.46	2.48	.014

*Note.* Parameter values are based on standardized scores for satisfaction, threat.

The second model (Table 4) assessed effects of sex, satisfaction and perceived threat on overestimation of positivity. As one can see from Table 4, none of these variables had statistically significant effects. The significant, negative intercept for women indicates that women underestimated positive thoughts by men, after controlling for satisfaction and threat. However, men also showed some tendency to underestimate positive thoughts by women, so the difference between men and women was not significant.

**Table 4**

*Fixed Effects of Multi-level Model Predicting Overestimation of Partner Positive Thoughts (Perceiver Meta Minus Partner Direct) from Sex, Relationship Satisfaction, and Perceived Threat*

Fixed Effects	<i>B</i>	<i>SE</i>	<i>df</i>	<i>t</i>	<i>p</i>
Intercept -- Men	-3.65	4.43	150.85	-1.50	.135
Intercept -- Women	-9.92	4.40	151.76	-4.14	.000
Sex	-6.27	3.89	151.18	-1.61	.109
Satisfaction	.83	1.62	215.00	.51	.609
Threat	-.39	1.66	229.50	-.24	.814

*Note.* Parameter values are based on standardized scores for satisfaction and threat.

### **Mind Reading Errors and Empathic Accuracy**

*H6* predicted an inverse association between specific mind reading errors and empathic accuracy. To test *H6*, we computed scores based on the absolute difference between the meta-perspectives within a given category by one person versus the direct perspectives within the same category by the partner. The absolute difference scores reflect dissimilarity of meta-perspectives and partner direct perspectives in either direction (i.e., over or underestimation of direct perspectives). The scores were calculated using summary codes for affective tone (percentage of positive, neutral, and negative thoughts) and thematic content (percentage of issue, person, and process appraisal thoughts).

Multi-level models tested associations between mind reading errors by the perceiver and the perceiver's empathic accuracy, with the dyad treated as a random effect to control for interdependence of partner scores (Kenny et al., 2006). Two models assessed combined effects of mind reading errors in affective tone and thematic content on empathic accuracy. Although sex differences were not a focus of this analysis, initial models screened for main

effects and two-way interactions involving sex. Sex did not account for any significant effects on empathic accuracy, so re-specified models omitted sex.<sup>2</sup>

Both models supported *H6*. Table 5 reports fixed effects for the first model, which predicted empathic accuracy from absolute difference scores (actor meta minus partner direct perspectives) for positive, neutral, and negative codes. Results revealed significant inverse effects of mind reading errors in positivity and neutrality on empathic accuracy and a similar nonsignificant trend for negativity error. The three mind reading errors for affective tone had a moderate combined relationship to empathic accuracy (quasi  $R^2 = .05$ ; see Kenny et al., 2006). The second model predicted empathic accuracy from absolute difference scores for issue, person, and process appraisal codes (Table 6). The second model revealed a significant effect for mind reading errors in process appraisal, a borderline effect for person appraisal error ( $p = .052$ ), and a nonsignificant trend for issue appraisal error. The three mind reading errors for thematic content had a small-to-moderate combined relationship to empathic accuracy (quasi  $R^2 = .04$ ). Collectively, these results indicate that empathic accuracy suffers either when individuals misread the partner's affective tone or the content focus of the partner's thoughts.

**Table 5**

*Fixed Effects of Multi-level Model Predicting Empathic Accuracy from Absolute Value Difference Scores (Perceiver Meta Minus Partner Direct) for Affective Tone*

Fixed Effects	<i>B</i>	<i>SE</i>	<i>df</i>	<i>t</i>	<i>p</i>
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<sup>2</sup> We also screened to ensure that mind reading errors affected empathic accuracy independent of main effects for direct and meta-perspective scores. Effects of absolute difference scores are sometimes confounded with the main effects for variables used in their computation (Griffin, Murray, & Gonzalez, 1999). We could not control for these main effects using only two models due to multicollinearity among the direct and meta-perspective scores, which were computed as percentages of total codes. Therefore, we performed six separate MLM models for mind reading errors on each summary code (positive, neutral, negative; issue, person, process), controlling for meta-perspective and partner direct perspective scores for that code. All models showed significant effects of mind reading errors after controlling for direct and meta-perspective scores. Since direct and meta-perspective scores did not affect interpretation of difference scores according to screening models, we omitted direct and meta-perspective scores in the main analysis.

Intercept	19.80	.74	152.70	26.6	.000
Mind Reading Errors (Meta – Partner Direct)					
Positivity error	-1.21	.66	293.25	-1.83	.034
Neutrality error	-2.00	.67	303.88	-2.98	.002
Negativity error	-.90	.65	300.52	-1.39	.082

*Note.* One-tailed  $p$ -values are reported to reflect the directional hypothesis ( $H6$ ). Parameter values are based on standardized scores for the three independent variables. The table omits the random effect for dyad.

**Table 6**

*Fixed Effects of Multi-level Model Predicting Empathic Accuracy from Absolute Value Difference Scores (Perceiver Meta Minus Partner Direct) in Thought Content*

Fixed Effects	<i>B</i>	<i>SE</i>	<i>df</i>	<i>t</i>	<i>p</i>
Intercept	20.22	.72	164.53	26.59	.000
Mind Reading Errors (Meta – Partner Direct)					
Issue appraisal error	-.93	.77	300.83	-1.39	.083
Person appraisal error	-1.08	.67	303.45	-1.63	.052
Process appraisal error	-1.67	.69	301.55	-2.42	.008

*Note.* One-tailed *p*-values are reported to reflect the directional hypothesis (*H6*). Parameter values are based on standardized scores for the three independent variables. The table omits the random effect for dyad.

## DISCUSSION

Empathic accuracy is both a key process during couple conflict and an especially challenging one. To effectively discuss relationship conflicts and thereby reconcile or better manage differences, partners presumably must focus on common issues, understand how the other person reasons about these issues, and do so on a moment-to-moment basis as the interaction unfolds. Yet, empathic accuracy research shows that partners are often unable to decipher what the other is thinking during couple communication. The present study extends empathic accuracy research by probing specific characteristics of partners' online thoughts and considering how these characteristics relate to success at mind reading. The results make three main contributions. First, the results describe basic features of online thought during couple conflict and show connections to actor-partner perspectives, relationship satisfaction, and perceived threat. Second, the study documents specific mind reading errors, particularly by women when inferring their male partners' thoughts, but characteristic of both partners

when they perceive conflict interactions as threatening. Third, results show that these specific mind reading errors relate to overall empathic accuracy.

### **Characteristics of Direct Perspectives Reflected in Online Thought**

To expand on the first contributions, results document forms of selective attention and interpretation of communication reflected in the content and tone of online thought. Results replicate several trends from previous research, but reveal novel results for sex differences. Our initial hypothesis (*H1*) suggested that partners show a high degree of mindfulness about the process of communication during conflict interactions. The results confirmed this hypothesis, as partners reported more thoughts about the process of communication versus other categories. Combined, process and person appraisal were nearly double in frequency compared to issue appraisal thoughts. These findings support the claim that natural speech is multilayered in nature, communicating both content and relationship meaning (e.g., Watzlawick et al., 1967) and that relational, identity, and process issues in interpersonal conflicts often supersede content issues in importance (Hocker & Wilmot, 1991).

Of course, the degree of *spontaneous* attention to communication process is difficult to assess from the current study because the results reflect the method of reporting thoughts. In this case, participants were asked to review video of their interactions in order to report about and infer unspoken thoughts and feelings. This task likely increased mindfulness about communication. However, other studies of online thought, using alternative reporting methods, also found frequent attention to communication process during couple conflict. This includes a video review study that did not ask individuals to guess the partner's thoughts (Sillars et al., 2000), and a study of computer-assisted communication without video review, in which partners verbalized thoughts aloud while typing comments to the partner (Vangelisti et al., 2013). These prior studies provide stronger evidence of spontaneous mindfulness about communication. Of greatest importance here, incongruent thoughts and specific mind reading

errors documented in other findings of this study often involved selective attention to and interpretation of the ongoing communication process.

As expected, results revealed both a perspective bias (*H2*) and a relationship bias (*H4*) in the way individuals thought about the interactions (i.e., their direct perspectives). The findings confirmed the second hypothesis, indicating a perspective bias in the way partners thought about their own communication versus their partner's communication during couple conflict. Both men and women attributed constructive engagement more often to self than to their partner (*H2a*), and attributed negative conflict strategies more often to their partner (*H2b*) than to self. These findings align with previous results, which suggest that partners' perceptions of conflict are consistent with a positive self-schema, maintained through positively evaluating the self and degrading or accusing the partner (Fletcher & Fincham, 1991). However, the present findings also suggest that self-serving bias extends beyond the realm of attributions in the conventional sense (i.e., explanations for behavior) and, in fact, color how speech events are read as acts of collaboration, confrontation, or avoidance.

As expected, partners who were more satisfied and felt less threatened by the interaction reported more positive thoughts and fewer negative ones (*H4a*, *H4b*). These findings support the premise of sentiment override theory that general perceptions of the relationship guide situational information processing in a schema-consistent manner. Translated to the current study, this means that satisfied partners tend to think about positive aspects of the conflict, partner, and interaction; whereas dissatisfied partners and those who feel threatened by conflict report negative thoughts that can reinforce dissatisfaction. While these trends do not represent novel findings, the results illustrate how negativity during conflict could be reinforced by a self-confirming process, in which molar perceptions of threat and dissatisfaction direct attention to negative aspects of the partner's communication.



We further assumed that the thoughts of men would be directed more toward issue appraisal, whereas women would think more about the conflict process and personal evaluations and attributions (*H3a, H3b*). However, these previously observed sex-linked patterns were not confirmed in the current study, nor were they replicated by Vangelisti et al. (2013). Differences between the samples provide one potential explanation, since the Dutch-speaking couples in the current study are from a different culture and represent a more recent cohort than the one studied in the earlier research (Sillars et al., 2000). In addition, some couples were recruited for the current study through the networks of university graduate students, a recruitment method that could have yielded a less “traditional” sex-typed sample than the couples in Sillars et al. (2000).

Although the expected sex difference in the thematic content of thought did not materialize, men had far more positive thoughts about the interaction and fewer negative thoughts than did women. The observed sex differences were unexpected and could be specific to the sample. However, the results are consistent with the observation that women are often the more negative partner during heterosexual, couple conflicts, due to structural inequities and greater motivation to manage relationships and initiate change (Eldridge & Christensen, 2002; Gottman & Carrere, 1994; Wickham, Beard, Riggle, Rothblum, Rostosky, & Balsam, 2016). This tendency might extend to the way that women assess conflict interactions. In other research, women showed a positive mean level bias in evaluating personality traits of their male partners (i.e., providing more positive evaluations of men’s traits than men do), but an opposite, negative mean level bias when evaluating men’s conflict styles (Wickham, et al., 2016).

### **Mind Reading Errors Related to Empathic Inaccuracy**

The results discussed thus far identify factors contributing to direct perspective differences in online thought. Potentially, individuals might accurately adjust for these

differences when inferring the partner's thoughts. The second main contribution of this research lies in documenting the source of specific mind reading errors. We expected that men would overestimate issue appraisal and underestimate process and person appraisal by women, whereas women would do the opposite when inferring the thoughts of men (*H5*). The results did not confirm these expected sex differences; however, they did reveal mind reading errors by women when they inferred the affective tone of their male partners' thoughts. The women in this study underestimated positive thinking and overestimated negativity by men, both overall and in specific areas. Women overestimated how much men denied responsibility for conflict and underestimated their positive thoughts about the interaction (i.e., men's thoughts of the interaction as constructive engagement and progressing toward resolution).

Follow-up analyses showed that sex and threat independently related to mind reading errors. Women showed a tendency to overestimate their male partner's negative thoughts, independent of their relationship satisfaction or perceived threat. However, both sexes overestimated negative thoughts by the partner when they perceived threat to self, partner, and the relationship. Past research depicts a complex relationship between perceived threat and mind reading accuracy. In some contexts, individuals demonstrate motivated inaccuracy toward the partner's relationship-threatening thoughts in a way that preserves positivity and buffers relationships (Simpson et al., 2003). However, other results suggest that anxiety about potential threat prompts over-attribution of negative thoughts to others (see Dugosh, Cheng, & Park, 2011). For example, anxiously attached individuals might accurately infer partner thoughts when they have good reason to feel threatened but read too much into the partner's thoughts in situations that should be reassuring (Dugosh, Cheng, & Park, 2011). Similarly, insecurely attached and abusive men over-attribute critical and rejecting thoughts to women (see Dugosh et al., 2011), seemingly because they selectively attend to potential attacks on self, while tuning out women in other respects (Schweinle & Ickes, 2007). Although the

current study did not isolate dispositional or situational factors that moderate reactions to perceived threat, results do show a parallel tendency (albeit less extreme) for intimate partners to over-attribute negative thoughts to the partner when they feel threatened by conflict.

The mind-reading errors observed in this research matter for two reasons. First, these “errors” largely involved interpretations of the communication process (e.g., the partner’s intention to avoid versus constructively engage), as process thoughts represented nearly half of all coded online thoughts. Considerable prior research documents attributional bias in explanations for negative behavior and conflict (e.g., Fletcher & Fincham, 1991). The current results reveals biases and inaccuracies in online cognition of a more localized nature. The results illustrate that understanding/misunderstanding in relationship conflict is partly rooted in subjective coding of ongoing interactions; for example, how one person reads the other’s communicative intent as constructive problem-solving versus avoidance. A basic axiom of communication is that all messages have a degree of ambiguity (e.g., Sillars, 2011), with the relational dimension of meaning being especially ambiguous (Watzlawick et al., 1967). One can easily imagine, for example, how a male partner’s hesitation to speak could be read as avoidance but could also represent an effort to defer, listen, and thoughtfully consider solutions. Similarly, positivity about conflict could be read either as constructive engagement or denial, a form of avoidance. Thus, empathic inaccuracy during relational conflicts reflects systematic differences in interpretation of the communication sequence, reminiscent of “punctuation differences” described by Watzlawick et al. (1967) and said to be the basis of countless relational conflicts.

Second, the mind-reading errors identified in this research reveal forms of inaccuracy that have the potential to escalate couple conflict. Conflict scholars have long maintained that distorted, negative perceptions of the other’s intentions and reasoning contribute to destructive cycles (e.g., Deutsch, 1973). Likewise, the current results identify concrete mind

reading errors during communication that could contribute to negativity and demand-withdraw in couple communication. Again, men mostly reported positive thoughts about the conflict and interaction and saw themselves as engaging the conversation constructively, whereas women often perceived men as avoiding responsibility. This discrepancy might lead women to increase negativity and pressure to engage issues, while evoking compensatory responses by men (i.e., increased demand-withdraw or reciprocal negativity). Further, the tendency of both men and women to over-attribute negativity when they feel threatened might contribute to self-confirming patterns of negative communication and negative reciprocity.

Interestingly, relationship satisfaction correlated with overall negativity of thought (both direct and meta-perspectives) but did not relate to mind reading errors (i.e., overestimation of partner negativity or positivity) in MLM analyses. Partners apparently used their own satisfaction or dissatisfaction to accurately forecast the affective tone of the partner's thoughts, likely because satisfaction levels of partners correlated strongly ( $r = .56$ ). Partners often, even routinely, project their own thoughts and feelings as a basis for understanding the other (see Sillars, 2011),<sup>3</sup> which can promote accuracy when the other partner's thoughts and feelings are, in fact, similar (Kenny & Acitelli, 2001). Although accurate in this sense, the negative meta-perspectives of dissatisfied partners might remain consequential for relationships because negative partner attributions contribute to self-reinforcing negative interactions between partners (Fincham, 2001).

An essential caveat regarding the mind-reading errors observed among women in this research is that these "errors" do not represent inaccuracies in an absolute sense. As in other studies of understanding and empathic accuracy, *inaccuracy* here represents incongruence between reported direct perspectives and meta-perspectives, the source of which could reside

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<sup>3</sup> Similarly, the current study provided strong to moderate evidence that projection played a role in empathic forecasting. The negativity of direct and meta-perspectives correlated .64 for men and .57 for women. The positivity of direct and meta-perspectives correlated .41 for men and .50 for women.

in biases at either end of the reporting process. While women might overlook and misread their male partner's constructive thoughts, it is also conceivable that these "errors" occur because of self-serving bias in the way men recall and report their own thoughts. Smith, Hall, Hodges, and Ickes (2011) note several limitations of the target's self-reported thoughts as the criterion for *accuracy* in mind-reading studies; for example, reported thoughts are subject to memory errors and shaped by self-presentation. Thus, men might under-report negative thoughts and intentions during the video-recall task.

In addition, thoughts by either partner about the interaction process might not coincide with observed characteristics of the interaction. Female meta-perspectives, which characterized the men as adopting a rather defensive outlook toward the discussion, were broadly consistent with the results of previous studies that point to a similar sex difference in partners' demand-withdraw behavior during conflict (Eldridge & Christensen, 2002). Observational ratings collected in the current sample but not used in the present study, indeed confirm the suggested sex difference in demand-withdraw behavior (Hinneken, Vanhee, De Schryver, Ickes, & Verhofstadt, 2016). This finding acknowledges the fact that women's reasoning about their male partner being less engaged in the conflict interaction and more avoidant or defensive was (partially) anchored in reality because men actually showed more withdrawal behavior.

Representing a third main contribution of the study, results identify specific mind-reading errors that predict overall empathic accuracy. Previous research has mostly analysed online thought to reveal overall empathic accuracy, without identifying specific thoughts and inferences that underlie inaccuracy. Generally, we expected specific mind reading errors by the perceivers in either thematic content or affective tone to be reflected in their overall empathic accuracy (*H6*). The results mostly supported this core premise of the research. Separate models showed significant effects of mind reading errors in thematic content

(particularly process thoughts) and affect (particularly positive and neutral thoughts) on empathic accuracy. Thus, empathic inaccuracy during couple conflict is rooted in two types of errors – misreading *what* the partner is thinking about during interaction, particularly the degree of attention given to interaction process, and misreading *how* the partner assesses the conflict and immediate interaction (e.g., how constructive versus confrontational or avoidant).

Because spontaneous feedback about the accuracy of a partner's inferred thoughts or feelings is rarely given during daily interactions, it seems likely that partners' thematic and affective misunderstandings will seldom be unmasked or corrected. Nonetheless, previous research has demonstrated that accuracy increases when the perceiver does receive immediate, veridical feedback, a finding that has opened up a promising direction for future research and clinical practice (Marangoni, Garcia, Ickes, & Teng, 1995; Barone, et al., 2005).

### **Study Limitations**

A few limitations of the study should be acknowledged. First, the sample included mainly middle-class, heterosexual, non-clinical and satisfied couples; therefore, no conclusions can be drawn about significantly dissatisfied or distressed couples. Future research should attempt to replicate these findings with more heterogeneous samples. Second, because the design was cross-sectional, the usual caution should be exercised about attempting to draw any causal inferences from the results. The temporal order of the processes under investigation could not be tested with the present data. In order to resolve the issue of causal order, future research should therefore use longitudinal or experimental designs. Third, the protocol used for reporting and inferring thoughts required a certain reflective and verbal ability of the participants, given that they had to report their own thoughts, infer the partners' thoughts, and translate these reflections into written verbal reports. Additionally, participants reported on their thoughts *after* the discussion has finished, therefore recall of one's direct and

meta-perspectives at one point during the interaction could be biased by the outcome of the interaction itself.

### **Conclusion**

The results point to factors underlying empathic inaccuracy during couple conflict. First, partners can misread the other partner's thoughts because they focus on qualitatively different aspects of interactions (content issues, the process of interaction, or personal evaluations and attributions) and they fail to anticipate and correct for this difference. Second, partners can misread the affective tone of the other partner's thoughts, as seen in the tendency of women to read a more negative and defensive outlook in men than shown in men's thoughts, along with the tendency of both sexes to over-attribute negative thoughts to the partner when they feel threatened. In part, this could reflect the fact that partners do not experience their interactions in quite the same way – they typically view their own communication as constructive and the partner's communication as confrontation or avoidance. Further, sentiment override could play a role, in that partners who are dissatisfied or feel threatened tend to think about their interactions in a self-confirming, negative way. These trends suggest biases in online thought and specific mind reading errors that contribute to the challenges of effective problem-solving during couple conflict.

**Appendix A***Examples [English translation of Dutch input]*

	<b>Affect</b>	<b>Direct</b> “I thought...”	<b>Meta</b> “My partner thought...”
<b>Person Appraisal</b>			
Positive Appraisal			
<i>Self</i>	+	...I've changed a lot too.	...about how she addresses the situation a lot better.
<i>Partner</i>	+	...the bad habits of my girlfriend have been decreased	...that I was working hard to make things better
<i>Dyad</i>	+	...We can do this. We have already been through a lot more than this	...we are so close, we can't live without each other
Benign Attribution	+	...It will be hard for her to change, but I can live with it.	...that he knows we have his best interests at heart.
Admission	+	...Indeed, sometimes I react too harsh.	...I have to solve the problem at the source.
Denial & Justification	-	...I work more hours than my boyfriend, so I have the right to do less household chores.	...You see, she is seeking excuses again.
Complaint	-	...She says she does the dishes, but I don't agree. She only rinses the plates.	...he has to do everything alone
Imperative	-	...Do the effort to show me you can!	...Stop nagging!
<b>Issue Appraisal</b>			
Elaboration	0	...to spend our holidays useful, on several areas.	... of the difficulties that await him
Likes	+	...I like to spend time with you.	...I'm satisfied with the positive changes.



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Dislikes	-	...the moment is not right for it	...this problem really bothers her
Agreement	+	...my partner is right.	...She agrees.
Disagreement	-	...I disagree with his thoughts on this.	...about the differences in our perspectives at this point.
Solution	+	...about other alternative possibilities.	...perhaps we can work on this too?
<b>Process Appraisal</b>			
Constructive Engagement			
<i>Self</i>	+	...that I expressed myself well.	...How can I introduce this problem properly? ...that it was good I
<i>Partner</i>	+	...he tries to comfort me	expressed my thoughts and feelings clearly.
<i>Dyad</i>	+	...that it is a good thing that we can discuss this topic here.	...that we can solve the problem together, they are negotiable.
Avoidance & Detachment			
<i>Self</i>	-	...Why should we discuss this problem? We already talked about this.	...that the topic is not important at all
<i>Partner</i>	-	...that he ignores everything I say by talking about something else.	...he isn't listening.
<i>Dyad</i>	-	...What should we say more?	...Why should I keep talking if he isn't listening anyway.
Confrontation			
<i>Self</i>	-	...I will confront him with the topic again!	...I'll show him the facts again [Dutch expression: met de neus op de feiten drukken]
<i>Partner</i>	-	...that my partner is exaggerating again.	...that I attacked her to protect myself.
<i>Dyad</i>	-	...here we go again.	...same old story.

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Understanding			
<i>Self</i>	+	Okay, I understand what he wants to bring about.	...I understand what is bothering you.
<i>Partner</i>	+	...that my partner understands what I'm talking about.	...that I understood her position
<i>Dyad</i>	+	...We're on the same wavelength	...that she was feeling that we're understanding.
Misunderstanding & Confusion			
<i>Self</i>	-	...about why my partner is reacting like this.	...I don't understand what he wants to say.
<i>Partner</i>	-	...that she misunderstands me.	...about how he still feels not understood by me.
<i>Dyad</i>	-	...that we both have to be more understanding.	...we never understand one another.
Foreboding & Impasse	-	...we are not talking about the heart of the matter.	...he is not discussing the matter by saying it is my topic, but that doesn't mean he should make no effort.
Resolution	+	...that we reached a good solution.	...we are progressing.
General Process	0	...to recap briefly	...how will we fill the remaining minutes with talking about the subject?
<b>Other/Uncodable</b>			
Don't Know		...nothing, I guess.	...not much, I think.
Thinking Same as What was Said		...about the things that I said.	...the same as she said.
Uncodable		...good.	...negatively.

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