A DYNAMIC SYSTEMS APPROACH TO UNDERSTANDING EMOTION COMMUNICATION PROCESSES DURING ROMANTIC RELATIONSHIP CONFLICT: EXAMINATION OF VULNERABILITY AND PROTECTIVE FACTORS

by

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(Under the Direction of Anne Shaffer)

ABSTRACT

The present study examined relations among romantic relationship functioning and couple emotion communication processes, including 1) observed emotion disclosure, and 2) dyadic observed affect (i.e., positive, negative, neutral affect for each partner across time), as measured by State Space Grids (SSG), a dynamic systems analysis (Hollenstein, 2013). Observational and self-report data were collected for 60 heterosexual dating couples. Results indicated that negative reciprocity as an attractor state was negatively related to both self-reported and observed indicators of romantic relationship functioning. Emotion disclosure was not related to either dyadic observed affect, or dyadic observed affect depending on the level of support/validation during conflict. Another goal was to examine whether childhood emotional maltreatment was associated with problematic dyadic observed affect, depending on levels of emotion disclosure and support/validation during conflict; hypotheses were not supported. Results build upon literature with married couples (e.g., Gottman & Levenson, 1992), finding that a negative reciprocity attractor state increases risk for relationship distress within young adult couples. Programs designed to promote adaptive affective expression within young couples have potential to mitigate risk for recurrent problematic relationships and associated distress.

INDEX WORDS: Emotion Communication, Dyadic Affect, Romantic Relationships

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CHAPTER 1

INTRODUCTION

Emotion theorists posit that emotions are "embedded" within interpersonal relationships (Parke, 1994) and shape interpersonal relationship dynamics (e.g., communication, responses to other's emotions, expression of emotions). By nature, romantic relationships are characterized by daily positive and negative emotional experiences between partners, and the way in which each partner communicates and responds to one another's emotional experience has important implications for the relationship (Cordova & Scott, 2001; Gottman, 1980; Markman, Rhoades, Stanley, Ragan, & Whitton, 2010). Notably, couples whose negative interactions outweigh the positive are at risk for experiencing relationship distress and dissolution (Gottman, 1994). Thus, research has sought to identify individual characteristics and couple processes that either buffer or increase vulnerability to problematic relationship processes and outcomes.

Clinically, emotion communication skills have been a target for improving relationship quality and reducing partner psychopathology (e.g., Beach, Sandeen, & O'Leary, 1990; Benson, McGill, & Christensen, 2012; Dessaulles, Johnson, Denton, 2003; Johnson and Greenberg, 1985). Additionally, emotion communication skills, including disclosure of one's own emotions as well as support and validation of partners' emotional experiences and disclosures, are incorporated in many couples interventions, with efforts to increase effective discussion related to emotional experiences (e.g., IBCT: Christensen, Wheeler, & Jacobson, 2008; EFT: Johnson, 2004). However, there is limited empirical assessment of couple emotion communication and specific abilities, such as emotion disclosure, or their relation to certain developmental predictors or concurrent aspects of relationship functioning (Mirgain & Cordova, 2007; Foran, O'Leary, & Williams, 2012).

The overall purpose of the current study was to replicate and build upon the extant literature by examining observed emotion disclosure (i.e., verbal identification and explanation of one's own emotional experience) as a potential process that buffers couples from problematic relationship processes and outcomes. Therefore, the first goal of the study sought to replicate previous findings linking emotion disclosure with positive relationship outcomes (e.g., satisfaction, quality) in young adult dating couples, as an extension from previous research examining these processes within marriages. The second goal of the study was to examine patterns of dyadic observed affect during a conflict interaction, as an indicator of a couple's ability to navigate emotionally charged discussions within the relationship. To serve this goal, the current study examined patterns of dyadic observed affect using State Space Grids (SSG: Hollenstein, 2013), a dynamic systems analysis. Dyadic/SSG charts the nonlinear patterns of dyadic observed affect, including attractors (i.e., normative patterns of dyadic interaction) and affective flexibility (i.e., degree to which the couple stays in or moves from dyadic states), by matching each partner's observed affect in real-time throughout the conflict discussion (e.g., at a given point, partner 1 = neutral, partner 2 = negative, thus dyadic observed affect = neutral X negative). Having established dyadic/SSG patterns, we sought to examine whether observed emotion disclosure was related to dyadic/SSG observed affect. We also examined whether a relation between emotion disclosure and patterns of dyadic/SSG observed affect depended on the average level of support/validation within a conflict discussion. A third and final goal of the study was to determine whether individuals with a childhood history of emotional maltreatment were 1) more vulnerable to engage in problematic patterns of dyadic/SSG observed affect, and 2) whether observed emotion disclosure and support/validation were particularly important (i.e., unique moderators) for individuals with histories of emotional maltreatment.

Emotion Disclosure and Support/Validation

Emotion communication skills broadly capture a partner's ability to disclose emotions in a nondefensive, problem-solving directed manner as well as the ability to respond to a partner

with support/validation rather than with defensiveness, withdrawal, or hostility (Mirgain & Cordova, 2007). Emerging empirical research indicates emotion communication skills might serve as an important process in building and enhancing relationship satisfaction and intimacy (Cordova, Gee, & Warren, 2005; Reis and Shaver, 1988; Mirgain & Cordova, 2007; Mitchell et al., 2008). For instance, using a sample of thirty-two married couples, Mirgain and Cordova (2007) found observations of emotion communication skills (e.g., identification, support/validation, lack of defensiveness) during a problem-solving discussion were related to greater marital satisfaction, and this relation was partially mediated by intimacy.

Emotion disclosure and support/validation seem to have important implications for both romantic partners. Emotion disclosure includes 1) labeling one's own emotional experience, and 2) identifying the causes and consequences of the emotion (e.g., "I'm mad because you forgot my birthday."), while support/validation captures the ability to respond to a partner's emotional experience with empathy, acceptance, and understanding (e.g., "It makes sense you would be mad."). Burgeoning literature indicates that labeling one's own emotions not only is related to decreases in self-reported distress but also neurological indicators of arousal after exposure to a negative, emotionally evocative stimulus. In addition, verbal labeling of emotional experiences has been related to increased ability to alter one's perspective or reappraise an emotionally arousing event (Burklund, Creswell, Irwin, & Lieberman, 2014). The previous studies focused only on the individual's emotion identification and were not conducted within the context of a romantic relationship. Within romantic relationship conflict, which naturally elicits negative affect, labeling and disclosing one's emotional experience might be an effective strategy in reducing negative affect and escalation that often is problematic for couples. Emotion labeling might promote further ability to engage and consider a partner's perspective during an emotionally laden conversation. For instance, Mirgain and Cordova (2007) included emotion disclosure as a component of emotion communication skills, supporting their role in promoting satisfaction and intimacy in relationships. Alternatively, lack of self-reported emotion

identification skills (i.e., alexithymia) and disclosure within the couple context, have been associated with decreased intimacy, decrease romantic relationship satisfaction, and increased relationship distress (Cordova, et al., 2005; Humphreys, Wood, & Parker, 2009; Foran, O'Leary, & Williams, 2012).

The way in which a partner responds to emotion disclosures within the relationship likely shapes relationship functioning and satisfaction. Emotion disclosure within the relationship context is often viewed as a vulnerable process, and a partner's ability to effectively provide empathy and support/validation in response to emotional disclosure can foster cohesion within the relationship and promote further disclosure (Cordova & Scott, 2001; Cordova et al., 2005). Consistent with this perspective, support/validation has been linked with positive relationship outcomes and is a component of skill building in many couple interventions (Markman, Stanley, & Blumberg, 2010; Notarius & Markman, 1993). With a sample of 102 predominantly married couples, Mitchell and colleagues (2008) examined the way in which partners responded to one another's written emotional disclosures about two upsetting events, one relationship-specific and one nonrelationship-specific. They found that supportive partner responses were positively related with self-reported intimacy. On the other hand, invalidation of a partner's emotion disclosure (e.g., minimizing, criticizing, ignoring, or becoming defensive in response to a partner's emotion disclosure) has been associated with problematic relationship processes and decreased relationship satisfaction in cohabiting and marital relationships (Cordova et al., 2005; Foran, O'Leary, & Williams, 2012; Gottman, 1998).

Based on the reviewed literature on emotion communication skills, observed emotion disclosure and support/validation seem to build intimacy and satisfaction, whereas emotion communication deficits impede positive relationship outcomes. However, studies have not examined whether emotion disclosure and support/validation are related to other romantic relationship indicators of relationship functioning. Additionally, research primarily has examined these processes within cohabiting and married couples. Therefore, additional research is required

to further elucidate the role of emotion disclosure and support within romantic relationships and to determine whether these processes serve similar roles for dating couples.

Several methodological considerations regarding the assessment of emotion disclosure are warranted. Previous research has examined emotion disclosure, as defined in the current study, via self-report measures (e.g., Sanford & Rowatt, 2004; Sanford & Grace, 2011) and individual interviews (Foran, O'Leary, & Williams, 2012); however, one might argue that emotion communication processes are best captured within the context of interest (e.g., couples' observed communication). In vivo observations of couple interactions allow for assessment of each partner's spontaneous responses to one another, rather than relying on memory of past experiences and behavior. Thus, observational assessment of emotion disclosure likely is more effective than self-report measures in capturing these in-the-moment responses to emotional experiences. Consistent with this theory, Cordova and colleagues (2007) identified that observational assessment of several emotion communication skills added unique variance in predicting romantic relationship outcomes above and beyond self-report measures. Given the interpersonal nature of emotions, examining emotion disclosure within the context of a couple interaction seems necessary to further research. To date, only Mirgain and Cordova (2007) have simultaneously examined couple emotion disclosure and support/validation via observational methods. Additionally, no known study has examined whether a relation between emotion disclosure and indicators of relationship quality depends on the level of support/validation during the same discussion.

Dyadic Observed Affect during Couple Conflict

In addition to observed *explicit* emotion disclosure, couples also communicate through other positive and negative expressions of affect (e.g., vocal tone, non-emotion verbal content, physical gestures, and facial expressions). Decades of research on couple interactions have examined dyadic observed affect during couple interactions (Billings, 1979; Gottman, 1979; Karney & Bradbury, 1997; Markman et al., 2010). Findings generally have indicated that

observed negative affect during interactions increases a couple's risk for divorce and decreased marital satisfaction overtime (Billings, 1979; Gottman, 1980; Karney & Bradbury, 1997; Markman et al., 2010). Alternatively, greater positive observed affect has been examined as a buffer of negative romantic relationship outcomes. When examined concurrently, low levels of positive affect in the context of higher levels of negative affect increased risk for dissatisfaction and divorce (Gottman et al., 1998; Gottman & Levenson, 1992; Johnson et al., 2005). While findings on negative observed affect generally have been consistent across studies, the role of positive observed affect in conflict has been less clear (e.g., Huston, Caughlin, Houts, Smith, & George, 2001; Markman et al., 2010).

Utilization of methods designed to capture dyadic exchanges of observed affect have resulted in the identification of several problematic patterns (e.g., Eldridge, Sevier, Jones, Atkins, & Christensen, 2007; Gottman, 1979). Seminal research by Gottman (1979) identified that distressed married couples not only express more negative affect (as noted above) but also engage in greater patterns of negative reciprocity (e.g., one partner becomes angry, and the other partner responds with anger) than nondistressed couples. Thus, the reciprocity or escalation of negative affect can more specifically identify relationship problems. Another process related to relationship distress occurs when a partner is disengaged from conflict, through withholding emotional experience, avoiding conflict, becoming defensive, or disengages from an emotionally laden conversation (Eldridge, et al., 2007; Benson et al., 2012). Withdrawal from conflict behavior primarily has been examined in response to demands by the other partner (Christensen, 1987; Christensen & Heavey, 1990), and is related to decreased satisfaction and poor relationship outcomes.

Adaptive patterns of dyadic observed affect also have been identified as they relate to healthy romantic relationship outcomes. With a sample of 130 newlywed couples examined over a six-year period, Gottman, Coan, Carrere, & Swanson (1998) identified several patterns of dyadic observed affect during conflict that related to marital satisfaction and stability. De-

escalation models included patterns in which partners responded to expressions of negative observed affect with a neutral response. Positive Affect models described patterns in which positive observed affect was characteristic throughout a conflict discussion and/or positive observed affect was expressed to de-escalate conflict. Lastly, the Balance Model was a pattern in which there was a balance between positive and negative observed affect. The Balance Model, accounted for the role of negative observed affect as being characteristic of all relationships, satisfied and dissatisfied. Notably, positive observed affect (e.g., smiling, affection, humor) in couple interactions, particularly conflict discussions, was particularly important for relationship health.

As evidenced by the extant literature, the role of positive and negative affect during couple interactions and overall relationship functioning is complex. As previously discussed in the literature review, high levels of negative affect and negative reciprocity are often related to poor relationship outcomes; however, the role of positive affect as an indicator of relationship functioning has been inconsistent. Fincham and colleagues (2008) assert the importance of separately examining positive and negative affectivity to fully capture the role of various affective states in romantic relationship functioning (e.g., high levels of both positive and negative affectivity versus high negative affectivity being the absence of negative affectivity). As a result, further examination of dyadic observed affect in relationships is warranted to clarify these relations, yet few studies have examined these complex patterns of interaction. Additionally, previous studies have not examined observed emotion disclosure and support/validation, as it relates to such processes.

The reviewed literature supports the notion that affect is embedded within romantic relationships, and that real-time, thorough assessment of affective expression as it unfolds during an interaction is essential to understanding predictors, correlates, and outcomes of dynamic patterns of dyadic observed affect. Thus, studies that analyze romantic relationship interactions through a dynamic systems approach that is designed to capture the often nonlinear,

multidimensional, dyadic function of observed affect in couples have been encouraged (Burr, Hubler, Larzelere, & Gardner, 2013; Fincham, Stanley, & Beach, 2007; Gottman, Swanson, Swanson, 2002; Gardner & Wampler, 2008; Griffin, 2002). Further details regarding new area of research methodology are described below.

Dynamic Systems Analysis of Dyadic Observed Affect—State Space Grids

Consistent with the notion that a romantic couple is composed of two individuals whose behavior and affect interact and influence one another, dynamic systems theory explains that there are multiple systems that shape development and behavior (e.g., Bronfenbrenner, 1979; Hollenstein, 2007). For instance, the individual level (e.g., emotion, behavior, cognition) would be considered the microsystem and the couple/dyadic level (e.g., dynamic interaction between partner's emotion, behavior, cognition) would be considered a mesosystem. Thus, dynamic systems analysis is capable of capturing the interactive process of affective expression between partners and captures all possible combinations of dyadic observed affect.

In the context of couples' affective communication, a SSG would resemble a matrix composed of one partner's possible affect (e.g., positive, negative, neutral) along one axis and the other partner's possible affect (e.g., positive, negative, neutral) along the other (see Figure1). Each partner's affect would be coded in real time throughout the interaction and matched at a specific time point to form a single SSG state (e.g., positive/negative, positive/positive, negative/negative). Dynamic systems theory relies on the assumption that a system (e.g., couple) can be in only one state at any given time (e.g., partner 1-negative affect, partner 2-negative affect) from an exhaustive set of possible states. Additionally, the system can shift from state to state (e.g., positive/positive to neutral/positive, or neutral/negative to negative/negative) as one or both partner's affective behavior changes.

Two concepts are central to dynamic systems and SSG analyses. Within the SSG, there are certain *attractor* states that emerge as recurrent or stable for a given system. For instance, a distressed couple might be attracted to a state of negative reciprocity (negative X negative). SSG

analyses also determine the flexibility of a couple's interaction style, which can be determined by a couple's engagement in states across the grid as well as the average number of transitions from state to state. Based on the previous reviewed literature, distressed couples in comparison to nondistressed couples might have more rigid patterns of conflict interaction (Gottman, 1994). For instance, couples who are more flexible, or engage in multiple affective states, might be more satisfied than those who become more stuck in an attractor state. Through examination of *attractor* states and the *flexibility* within the state space grid, SSG analyses have potential to quantitatively inform whether the degree of flexibility and attractors influences relationship outcomes.

Limited research on romantic relationships has examined these patterns using real-time, dynamic processes. Gardner & Wampler (2008) conducted one known study that employed SSG to examine affective processes in romantic relationships. 23 couples engaged in a discussion of both a current area of conflict and a recent time in which a partner was supportive. Each partner watched a video recording of the discussions, and provided self-reports of their real-time affective experience. Affect was collapsed into five states (i.e., low positive, low negative, high positive, high negative, neutral), and several unique clusters of dyadic affect patterns emerged (e.g., positive, neutral, disorganized/variable affect). Contrary to hypotheses, there were no significant differences in satisfaction based on cluster type, which was attributed to low statistical power. Thus, studies with adequate power are required to further examine the dynamic processes of dyadic observed affect via SSG analysis.

Influence of Childhood Emotional Maltreatment on Emotion Communication

Another goal of the current study was to examine potential vulnerability factors that increase risk for engagement in problematic patterns of dyadic observed affect. As emotional competence begins developing at an early age, childhood experiences have potential to shape an individual's ability to manage emotions during romantic relationship conflict. From a family systems perspective the family environment is one of the most proximal and influential systems

in shaping one's beliefs, perceptions, and understanding of emotions (Masten & Shaffer, 2006). A tripartite model of family influence on children's emotion regulation and adjustment (Morris, Silk, Steinberg, Myers, & Robinson, 2007) posits that children's emotion regulatory abilities and competence are shaped by children's exposure to the family emotional climate (e.g., attachment/parenting style, expressivity), observation (e.g., parental modeling of emotions, social referencing), and parental socialization and response to emotions (e.g., emotion coaching, reactions to emotions, emotion communication). Additionally, these family experiences can either promote adaptive or maladaptive emotional functioning (Gottman, 1996; Morris, et al., 2007; Shipman et al., 2007).

Parents who assist their children in the identification, understanding, and coping with emotions and model appropriate responses to emotions are more likely to have children who are better able to navigate emotionally arousing events (Gottman, 1996). In addition, children's expressive sharing of emotions with parents has been related to greater emotion coping skills (Gentzler, Contreras-Grau, Kerns, & Weimer, 2005). Alternatively, childhood emotional maltreatment, which is comprised of parenting behavior that includes emotional neglect (i.e., emotional unavailability, failure to respond to and support a child's emotional needs, detachment, indifference) and emotional abuse (i.e., taunting, belittling, rejecting, criticizing and spurning; Egeland, 2009), results in a developmental context in which children's emotional disclosure is often invalidated and/or neglected.

In the context of emotional maltreatment, children often have few skills to regulate their emotional responses leading to increased arousal (Shenk & Fruzetti, 2011). For instance, Shipman and colleagues (2007) examined parent and child emotion processes in maltreating versus nonmaltreating families. They identified that maltreating parents were less likely to validate or teach their children skills to effectively cope with emotions, and children of maltreating parents were more likely to have difficulties regulating their emotion. Thus,

childhood history of emotional maltreatment might increase vulnerability to experience deficits in emotion identification and problematic patterns of dyadic observed affect.

Generally, individuals with histories of emotional maltreatment and emotion invalidation are at risk for greater interpersonal problems, including managing negative affect, validating one's needs, and asserting preferences (Fruzetti, Shenk, & Hoffman, 2005). Additionally, when vulnerable emotion expression is not supported or is met with criticism, individuals likely will inhibit emotional disclosure in the future (Cordova and Scott; 2001). Thus, individuals with a history of emotional maltreatment might also have increased sensitivity to invalidation within a romantic relationship. Alternatively, emotionally maltreated individuals might have more adaptive and satisfying relationship in the context emotion disclosure and support/validation.

Despite a potential risk for relationship difficulties, previous studies have not examined relations between emotional maltreatment, observed emotion disclosure, support/validation, and dyadic observed affect within romantic relationships. However, childhood emotional maltreatment has been linked to decreased romantic relationship satisfaction and quality (DiLillo et al., 2009; Riggs, Cusimano, & Benson, 2011; Riggs & Kaminski, 2010) as well as poor conflict resolution strategies (Fritz, Slep, & O'Leary, 2012; Lohman, Neppi, Senia, & Schofield, 2013; Moore & Coates, 2007). Additionally, emotion regulation difficulties (e.g., the ability to be aware of, identify, control, and modify emotions in an adaptive, goal-oriented manner; Southam-Gerow & Kendall, 2002) have mediated relations between childhood emotional maltreatment and romantic relationship difficulties (Berzenski & Yates, 2010; Bradbury & Shaffer, 2012; Gratz, Paulson, Jakupcak, & Tull, 2009). Thus, emotional maltreatment might increase risk for maladaptive patterns of dyadic observed affect. Limited research has examined these constructs and no known study has examined observed emotion disclosure or support/validation as a potential moderator of the relation between childhood emotional maltreatment and relationship processes such as dyadic observed affect.

Goals and Hypotheses of the Current Study

The purpose of the current study was to build upon and address gaps in the romantic relationship literature, through examination predictors and outcomes of observed emotion communication processes within young adult relationships. Two couple emotion processes were examined as a focus of the current study: 1) *observed emotion disclosure* (i.e., disclosure of emotion as well as its cause and consequence), and 2) *dyadic/SSG observed affect* (i.e., patterns of affect as it unfolds during a conflict discussion). Observed emotion disclosure and dyadic/SSG observed affect primarily have been examined within marital relationships (Cordova et al., 2005; Mirgain & Cordova, 2007; Gottman et al., 1998; Markman et al., 2010). However, previous studies have demonstrated that young adult romantic relationship processes can carry over into more committed adulthood romantic relationships (Seiffge-Krenke, 2003). In addition, problematic conflict resolution (e.g., high levels of negative observed affect) has been identified premaritally and has predicted subsequent marital distress and dissolution five years later (Markman et al., 2010). Thus, examination of these processes within dating couples can inform prevention and intervention efforts for young adult relationships.

Goals and hypotheses for the current study are outlined below. Given inconsistency within the literature, examination of associations between shared positive affect, emotion disclosure, and indicators of relationship functioning was exploratory.

Goal 1: Examine relations between observed emotion disclosure and indicators of relationship functioning.

- Hypothesis 1: Observed emotion disclosure would be positively related to a) observed relationship quality, b) observed conflict resolution, c) self-reported romantic relationship satisfaction, and d) self-reported satisfaction with the conflict discussion.

Goal 2: Examine relations between dyadic/SSG observed affect and indicators of relationship functioning.

- Hypothesis 2: Flexibility would be positively related to a) observed relationship quality, b) observed conflict resolution, c) self-reported relationship satisfaction, and d) self-reported satisfaction with the conflict discussion.
- Hypothesis 3: Negative reciprocity would be negatively related to a) observed relationship quality, b) observed conflict resolution, c) self-reported relationship satisfaction, and d) self-reported satisfaction with the conflict discussion.

Goal 3: Examine relations between observed emotion disclosure and dyadic/SSG observed affect.

- Hypothesis 4: Observed emotion disclosure would be positively related to flexibility
- Hypothesis 5: Observed emotion disclosure would be negatively related to negative reciprocity.

Goal 4: Examine whether relations between observed emotion disclosure and dyadic SSG observed affect depended on level of support/validation.

- Hypothesis 6: Observed emotion disclosure would be positively related to flexibility at high but not low levels of support/validation.
- Hypothesis 7: Observed emotion disclosure would be negatively related to negative reciprocity at high but not low levels of support/validation.

Goal 5: Examine whether a relation between childhood emotional maltreatment and dyadic/SSG observed affect depended on the level of observed emotion disclosure or depended on the level of support/validation. In the context of high levels of observed emotion disclosure or support/validation these relations were expected to be attenuated or reversed.

- Hypothesis 8: Emotional maltreatment would be negatively related to flexibility, but only at low levels of observed emotion disclosure.

- Hypothesis 9: Emotional maltreatment would be positively related to negative reciprocity, but only at low levels of observed emotion disclosure.
- Hypothesis 10: Emotional maltreatment would be negatively related to flexibility, but only at low levels of support/validation.
- Hypothesis 11: Emotional maltreatment would be positively related to negative reciprocity, but only at low levels of support/validation.

CHAPTER 2

METHOD

Participants

Participants included 60 heterosexual couples currently in a dating relationship (minimum relationship duration = 1 month) with an average relationship duration of 19.14 months (*SD* = 16.46). Participants' ages ranged from 18 to 33 years (*M* = 20.03, *SD* = 2.13). The majority of participants identified as Caucasian (*N* = 83; 69.2%), while 4 identified as African-American (3.0%), 17 as Asian-American (5.8%), 7 as Hispanic (1.9%), and 7 as mixed-race (5.8%).

Procedure

The current study included data collected as part of a larger study evaluating developmental predictors of romantic relationship outcomes. Data collection was completed in two phases described below.

Phase I. Phase I participants completed measures using Survey Monkey, an online survey website that meets the U.S. Department of Commerce's Safe Harbor Privacy Standards. Research has found that in comparison to paper-and-pencil methods of the same measure, online data collection can be more efficient, yield similar results, and have similar psychometric properties (Ogolsky, Niehuis, & Ridley, 2009). Phase I participants were recruited to participate in the study through the Department of Psychology's Research Participant (RP) Pool and through flyers placed around campus. Participants were required to be current undergraduate students. As incentive for participation, respondents received either course credit (if completed as a course requirement) or entry into a raffle for $50 (if recruited via flyer). Interested respondents contacted the research lab via email or telephone, and a research assistant provided qualified

individuals with the survey URL and a personal identification number to ensure confidentiality. In order to participate, participants were required to sign an electronic consent form located at the beginning of the survey.

Phase II. Phase I participants who endorsed a current romantic relationship of the required duration were invited to participate in Phase II of the study along with their romantic partners. Romantic partners were not required to be a current student. Phase II took place in a psychology research laboratory designed for structured observational assessments. Following consent procedures, couples participated in a series of interaction tasks that were video recorded for later coding. The first task was a conflict discussion during which the couple was asked to talk about a topic of disagreement for 15 minutes, including discussion of how they feel about the problem as well as efforts to reach a solution or compromise. Each partner rated common areas of disagreement (e.g., jealousy, communication, time spent with one another) on a scale of 1 (not a problem) to 5 (a severe problem), and prior to the discussion partners were provided with their rating forms and asked to agree on a topic to discuss for fifteen minutes. If participants reached a solution prior to the end of the 15 minutes, they were asked to select another topic to discuss. The second task was a cooperative, problem solving activity, during which couples were allotted 15 minutes to plan a 5-day vacation on a $3000 budget. Following the interaction tasks, each partner completed self-report questionnaires not included in Phase I. The partner who did not participate in Phase I, completed demographic information and several Phase I measures during this time. As incentive for participation, each participant received $20.

Observational Measures

Real-Time Event-Based Coding Scales: Observed Affect. Observational assessment of observed affect in the couple was assessed using codes adapted from the Family Process Code (FPC; Dishion, Gardner, Patterson, Reid, & Thiboldeaux, 1983). The FPC is a real-time coding system originally designed to assess family interactions, including the type of family activity, content of the interaction (e.g., behavior, verbal statement), and the valence (e.g., emotional tone)

of the interaction. For the purpose of assessing couple observed affect, a combination of interaction content and valence was used to form six possible observed affective states (i.e., high positive, low positive, high negative, low negative, neutral engaged, and neutral disengaged) further described below. Each partner's unique observed affect state was coded from the video recordings of the conflict discussion. Negative and positive observed affect was coded as either high or low. *High negative affect* characterized observed affect with clear anger, hostility, or disapproval, and included verbal attacks, name calling, swearing. *Low negative affect*, on the other hand, characterized observed affect with mildly disapproving, irritated, or hostile tones, and included mild threats of consequences, tearfulness, complaining, and defensive behavior. *High positive affect* characterized observed affect of intense happiness, exuberance, supportiveness, and included both loud expressions, and those softer in tone, that were clear examples of happiness. *High positive affect* also captured physical intimacy including embraces, hugs, or kisses. *Low positive affect*, on the other hand, characterized observed affect of notable warmth, pleasure, or supportiveness, including laughter, positive statements of self and partner, brief examples of physical affection (e.g., brief hand on partner's back, hand, leg). Neutral observed affect was coded as either *neutral engagement* or *neutral disengagement*. *Neutral engagement* characterized partner behavior and observed emotion when there was no clear positive or negative emotion present, but the partner remained engaged in the conversation. This also captured very mild observed affect that was unclear. Neutral behaviors could include head nods and shrugs. *Neutral disengagement*, on the other hand, captured partners who did not express clear negative or positive observed affect, but clearly were no longer engaged in the discussion with the partner: partners might have failed to respond to a question, look away, or ignore a partner's comment.

Advanced research assistants were trained to code observed affect for each partner using Noldus behavioral research software (Noldus Information Technology, 2007). Noldus is a coding system designed to code real-time occurrences of behavior for each individual within an

interaction task. A partner could be in one and only one affective state (i.e., high positive, low positive, high negative, low negative, neutral engagement, neutral disengagement) at any given point of the discussion. While watching the conflict discussion video, the research assistant used a predetermined keyboard key to identify either the male or female partner's observed affect state as it began in real time. When a new observed affect state was observed, this signified an end to the previous affective state. Noldus saved each partner's observed affect data within a single event log, allowing for analysis of each partner's affect state at any given point during the interaction (e.g., partner 1 = low negative, partner 2 = neutral engaged). To reduce bias, a research assistant coded only one partner per couple. Prior to coding observed affect in the conflict discussion, undergraduate and graduate research assistants were trained and assessed for a minimum of 80% accuracy (Kappa coefficient = .60) for 25% of the dyads. In the current study, Kappa coefficients ranged from .61 to .84 (M = .68, SD = .07), suggesting 80% to 90% accuracy (Bakeman & Quera, 2011).

Global Observational Coding Scales: Trained research assistants the conflict discussion and vacation interaction tasks for several indicators of relationship functioning. As specified for each variable, some codes were specific to the conflict discussion task, while others captured behavior across both the conflict discussion and vacation tasks.

Emotion Disclosure. Observational assessment of emotion disclosure (see Appendix A) was assessed using a scale that was adapted from a coding system included in AFFECT (A Family Focused Emotion Communication Training; Shipman & Fitzgerald, 2005). *Emotion disclosure* captured a partner's ability to identify, label, disclose and express understanding of one's own emotional state (e.g., "I felt sad."), including the causes and consequences the emotional experiences (e.g., "I felt sad when you had to leave last week;" "I yelled when I was mad and didn't want to talk about it."). Scores ranged from 1 (no emotion disclosure) to 7 (very high emotion disclosure). At low levels of emotion disclosure, participants only labeled emotions without identification of causes and consequences of emotion. At mid levels, participants engaged

in some emotion labeling and identification of causes and consequences. At high levels, participants frequently engaged in emotion labeling and identification of causes and consequences of emotion, with few missed opportunities. Each partner received an emotion disclosure score

Support/Validation. *Emotion support/validation* was assessed using a scale from the Romantic Relationship Assessment Observational Rating Scales (Aguilar et al., 1997). The scale captured a partner's ability to engage in positive listening (e.g., attentive, head nods, eye contact) and speaking skills (expressed warmth, summarizing statements, encouraging partner) that demonstrated support and understanding of the partner. Scores ranged from 1 (extremely uncharacteristic support/validation) to 9 (extremely characteristic support/validation). At low levels a partner engaged in no to minimal signs of support/validation and might have seemed cold, flat, or unresponsive to partner. At mid levels, participants engaged in some signs of support/validation though inconsistently. At high levels, participants engaged in strong to exemplary signs of support/validation (e.g., warm, responsive) throughout the discussion.

Relationship Quality. *Observed relationship quality* was assessed using several coding scales from the Romantic Relationship Assessment Observational Rating Scales (Aguilar et al., 1997), including *balance I, balance II, and overall relationship quality*. The degree to which partners were comfortable with self-expression and vulnerability in the relationship was assessed using the *balance I: openness and self-assertion vs. self-concealment scale*. Scores on this scale ranged from 1 to 7, with the lower scores representing couples where neither partner was open or freely expressed opinions or feelings; the partners appeared guarded or defensive. At the middle of the scale, one partner might have been guarded while the other was open or there was a mix of openness and self-concealment for both partners. At the high end, both partners freely and openly expressed feelings and opinions with no holding back. The degree of individual growth within the relationship context was assessed using *balance II: development of the relationship vs. development of the individuals*. The scale examined whether individuals appeared to sacrifice

individuality to maintain the relationship or whether there was enmeshment that limited individuality. Scores on this scale ranged from 1 to 7, with lower scores representing couples where one or both partners appeared suppressed or limited by the dyadic interaction, such that there was loss of individuality or isolation. At the middle of the scale, the interaction seemed to serve both partners well at times, but this might not have been consistent. One partner might have seemed squelched by the dynamic at times. At the high end of the scale, there was clear room for individuality and individual expression to contribute to the interaction and contributions were acknowledged, supported, and considered in meeting goals. At this level, there was richness and complexity in the interaction. The *overall relationship quality* scale assessed the couple's overall quality based on the entire interaction. Notably, the scale did not question whether the relationship would last into the future, but whether the relationship was characterized by emotional closeness, mutual caring, enjoyment, and faithfulness. Scores ranged from 1 to 7, with lower scores representing a very poor relationship, in which the relationship seemed to have little salience for the individuals or it was exploitative or destructive. At the middle of the scale, there was a balance between positive and negative characteristics, and the relationship seemed to serve each partner in some way. At the high end of the scale, positive features clearly dominated the relationship and there was little concern; the relationship appeared highly functional and supportive, given the partners were in their college years. All scores were given to the couple as a dyad, rather than each partner receiving a single score. The balance I, balance II, and overall relationship satisfaction scales captured the couple's behavior throughout both the conflict task and vacation task, Consistent with previous literature utilizing the discussed scales (Madsen & Collins, 2011; Roisman, Madsen, Henninghausen, Sroufe, & Collins, 2001), the current study standardized and averaged balance I, balance II, and overall relationship satisfaction to establish a *observed relationship quality* score (final score standardized). Correlations among these variables were significant and ranged from .741 to .883, with all *p*-values less than .001.

Conflict Resolution. Observed conflict resolution was assessed using the *Conflict resolution* scale from the Romantic Relationship Assessment Observational Rating Scales (Aguilar et al., 1997). *Conflict resolution* assessed the degree of satisfaction and cooperation with the problem-solving process. Scores ranged from 1 to 7, with lower scores indicating little effort towards meeting goals, lack of involvement with each other, or partners appeared at odds with one another. At the middle of the scale, there was some satisfaction and there seemed to be effort at collaborating to meet goal. Middle scores also captured interactions with limited conflict due to lack of opinions provided or those in which opinions were discussed but the process was strained. At the high end of the scale, partners worked well together, provided opinions, and demonstrated sensitivity and understanding of the other's views. *Conflict resolution* scale only reflected behavior exhibited during the conflict discussion task.

Prior to coding video recordings of the couple interactions, each member of the coding team was trained and achieved reliable scoring. Coders assigned a global score for each scale reflective of the dyadic interactions. Due to the global nature of the emotion communication codes (i.e., overall scores for the interaction, rather than event-based codes), inter-rater agreement was measured via intra-class correlations (i.e., average measures), using the two-way mixed and absolute agreement options within SPSS version 22. Inter-rater reliability was computed for the first 20 dyads (30%). Each scale demonstrated adequate reliability as follows: emotion disclosure (Females: ICC = .87; Males: ICC = .60), support/validation (Females: ICC = .96; Males: ICC = .66), balance I (ICC = .80), balance II (ICC = .74), overall relationship Quality (ICC = .70), and conflict resolution (ICC = .83).

Self-Report Measures

Romantic Relationship Satisfaction. Self-reports of relationship satisfaction were assessed using the *Relationship Assessment Scale* (RAS; Hendrick, 1988), a 7-item questionnaire designed to evaluate satisfaction in a romantic relationship. Using a Likert scale ranging from 1 (not at all) to 7 (very much), participants reported their satisfaction regarding several areas of the

relationship including love, expectations, and overall satisfaction (e.g. "How good is your relationship compared to most?"). Romantic relationship satisfaction scores range from 1 (not at all satisfied) to 7 (very much satisfied). Internal consistency for romantic relationship satisfaction was adequate in the current sample ($\alpha = .81$).

Satisfaction with Conflict Discussion. Self-reported satisfaction with the conflict discussion process was assessed using three items developed for the current study. Immediately following the conflict discussion, each partner answered the following items: "How satisfied are you with the process of your discussion?" "How satisfied are you with the outcome of your discussion?" "Do you believe that your partner listened to and considered your perspective?" Scores for the first two items ranged from 1 (very dissatisfied) to 4 (very satisfied). Scores for the last item ranged from 1 (definitely no) to 5 (definitely yes). Each item was standardized and the average was computed for a total, self-reported satisfaction with conflict score. Internal consistency for satisfaction with the conflict discussion was adequate in the current sample ($\alpha = .76$).

Childhood Emotional Maltreatment. The Childhood Trauma Questionnaire (CTQ; Bernstein & Fink, 1998) is 28-item retrospective self-report measure designed to measure experiences of childhood maltreatment in five different areas (physical abuse, physical neglect, emotional abuse, emotional neglect, and sexual abuse). Using a Likert-scale ranging from 1 (never true) to 5 (very often true), participants reported their experience of particular events while growing up. An emotional maltreatment score was computed by averaging the emotional abuse and emotional neglect scales, which were highly correlated ($r = .557$, $p < .001$). Childhood Maltreatment scores have a possible range from 5 (no maltreatment) to 25 (severe maltreatment). Internal consistency for emotional maltreatment was adequate in the current sample ($\alpha = .86$).

State Space Grid Measures of Dyadic Observed Affect

Real time data of each partner's individually coded observed affect was exported into GridWare 1.1 (Lamey, Hollenstein, Lewis, & Granic, 2004), a program developed to conduct

SSG analyses. To represent all possible dyadic observed emotion states, a State Space Grid comprising a 6 x 6 matrix was developed including the female partner's observed affect (i.e., high negative, low negative, neutral disengaged, neutral engaged, low positive, high positive) along the *x-axis* and male partner's observed affect (i.e., high negative, low negative, neutral disengaged, neutral engaged, low positive, high positive) along the *y-axis* (see Figure 1). Each cell in the matrix represented a possible dyadic observed affect state for the dyad. Gridware 1.1 populated the SSG by time-matching each partner's dyadic observed affect from the beginning of the 15-minute conflict discussion to the end. If a couple began the conversation in a neutral x neutral state, a dot was placed in the respective cell and remained until a shift occurred in either or both partner's observed affect (e.g., shift to neutral x low positive). When the shift occurred, a dot was placed in the respective cell and a line was drawn connecting the new state to the original state. By the end of the 15-minute conversation, the SSG was comprised of dots and lines reflecting the couple's dyadic observed emotion throughout the conversation. Using all SSGs from the sample, Gridware 1.1 developed indices of interaction patterns (e.g., dispersion, transitions, average mean duration) that were used for further analyses.

Within the current study, the goal was to assess flexibility and possible attractor states of dyadic/SSG observed affect. *Flexibility* was examined using the Gridware measure of dispersion, the range of cells visited while controlling for proportional durations in each cell (Hollenstein, 2013). Dispersion the sum of the squared proportional durations across all cells corrected for the number of cells and inverted resulting in values ranging from 0 (no dispersion) to 1 (maximum dispersion). Greater dispersion scores indicate greater flexibility. To analyze *negative reciprocity* and *shared positive affect* as attractor states (see figure 2), the SSG mean region duration and number of visits to each attractor region was standardized and averaged in order to create a single *negative reciprocity* attractor variable and single *shared positive affect* attractor variable. Higher scores indicated the attractor was a more prominent pattern of dyadic observed affect during conflict.

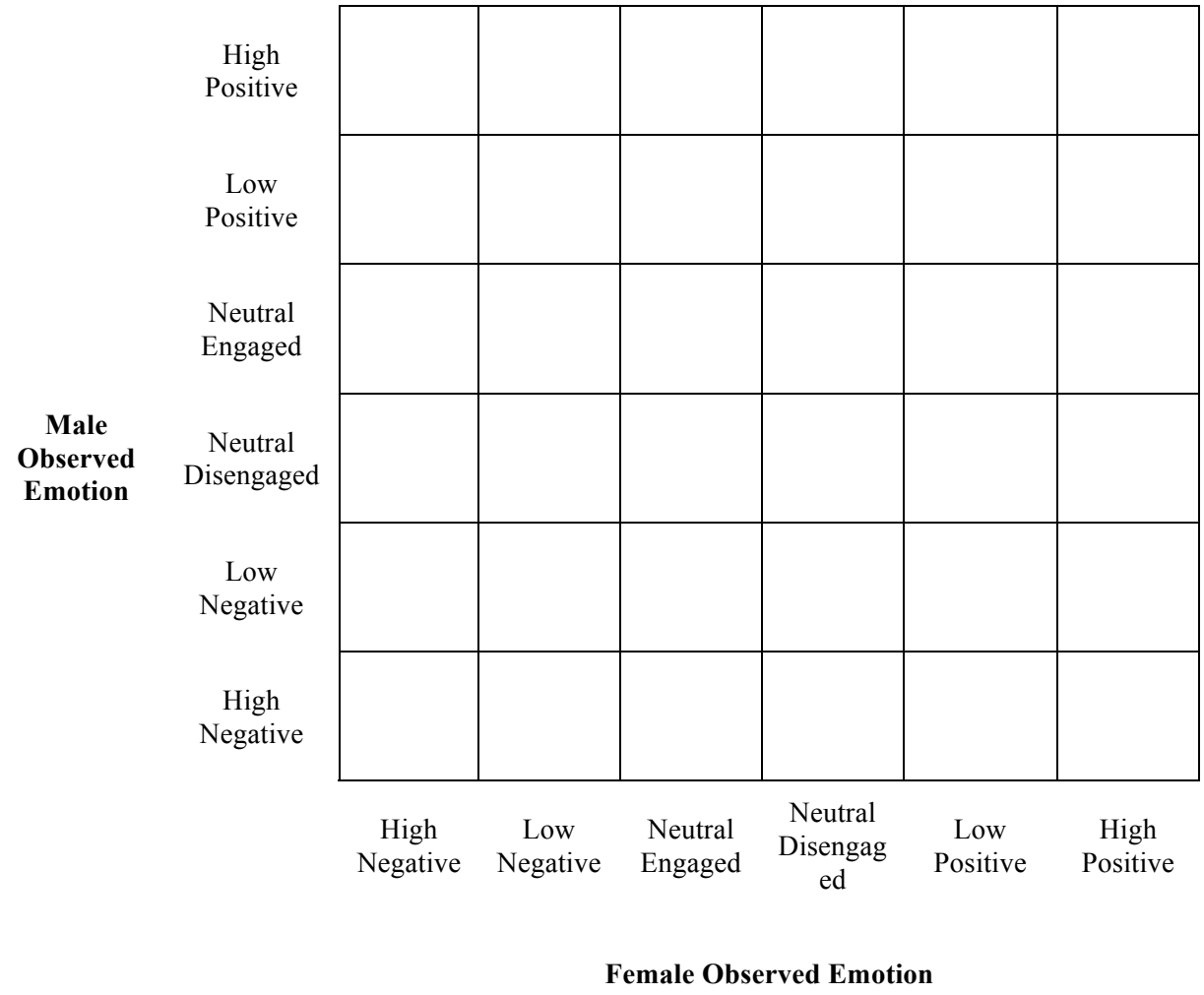

Figure 1. State Space Grid (SSG)

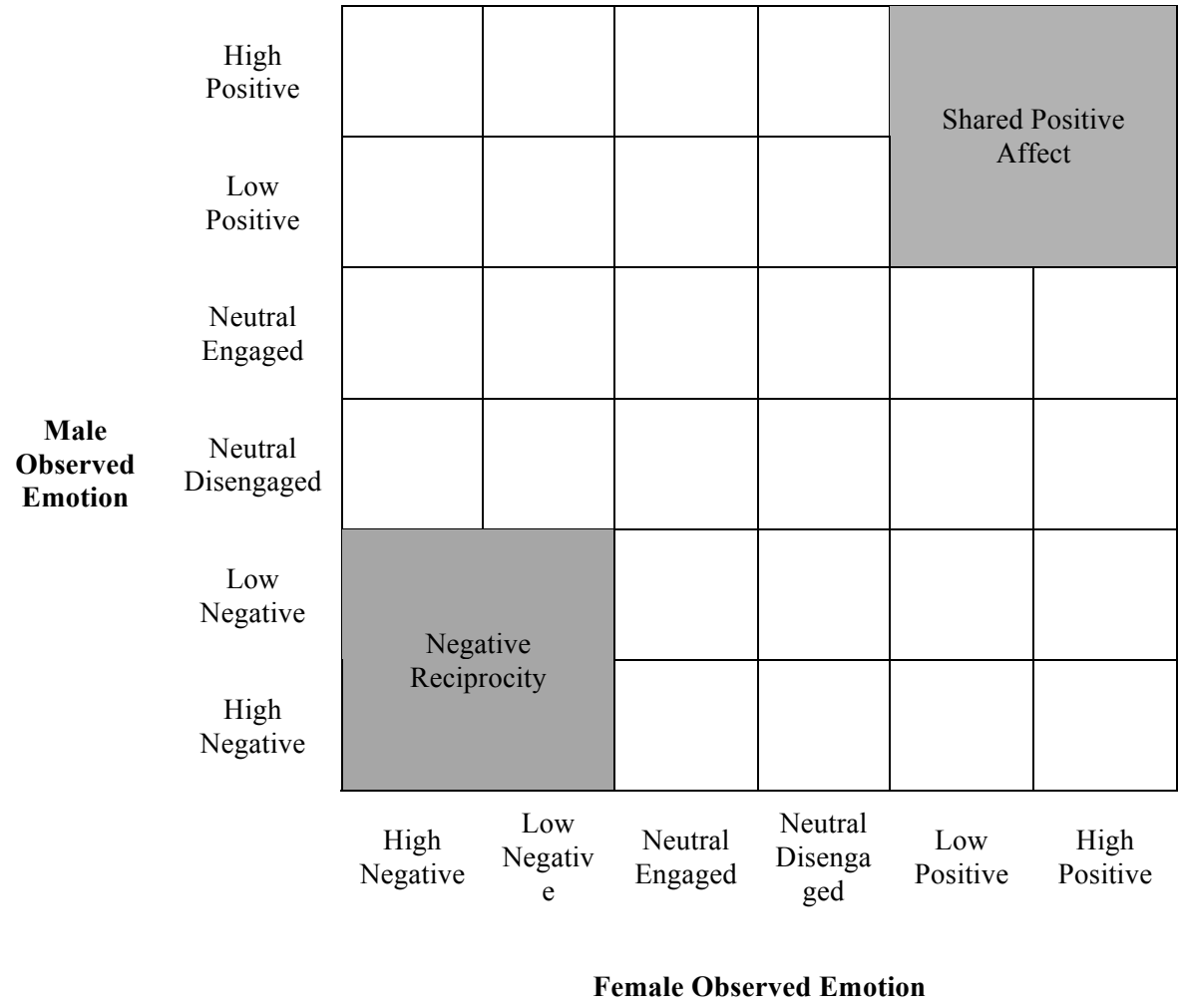

Figure 2. Dyadic/SSG Observed Affect Attractor Regions

CHAPTER 3

PLAN FOR ANALYSES

Preliminary analyses included computation of descriptive statistics, correlations, and t-tests to determine whether differences emerged on study variables based on participant sex. Bivariate correlations were conducted to examine relations as outlined by Hypotheses 1 through 5 as follows:

- Hypothesis 1: Examine whether observed emotion disclosure would be positively related to a) observed relationship quality, b) observed conflict resolution, c) self-reported romantic relationship satisfaction, and d) self-reported satisfaction with the conflict discussion.
- Hypothesis 2: Examine whether flexibility would be positively related to a) observed relationship quality, b) observed conflict resolution, c) self-reported relationship satisfaction, and d) self-reported satisfaction with the conflict discussion.
- Hypothesis 3: Examine whether negative reciprocity would be negatively related to a) observed relationship quality, b) observed conflict resolution, c) self-reported relationship satisfaction, and d) self-reported satisfaction with the conflict discussion.
- Hypothesis 4: Examine whether observed emotion disclosure would be positively related to flexibility
- Hypothesis 5: Examine whether observed emotion disclosure would be negatively related to negative reciprocity.

Analysis of Conditional Effects

Moderation analyses in the current study were conducted via the SPSS macro, PROCESS, discussed in Hayes (2012). PROCESS conducted estimates of model coefficients and provided simple slopes to demonstrate the effect of the predictor on the outcome at different

levels of the moderator. These values could be entered into a graphing program to provide a graphic representation of interaction effects. In addition, confidence intervals were generated based on bootstrap sampling. Predictor and moderator variables were mean centered prior to analyses.

To test the hypothesis that the relation between overall observed emotion disclosure and dyadic/SSG observed affect was conditional upon level of support/validation, two moderation analyses were conducted as follows:

- Hypothesis 6: Observed emotion disclosure (entered as predictor) would be positively related to flexibility (entered as outcome) at high but not low levels of support/validation (entered as moderator).
- Hypothesis 7: Observed emotion disclosure (entered as predictor) would be negatively related to negative reciprocity (entered as outcome) at high but not low levels of support/validation (entered as moderator).

Lastly, to examine whether a relation between emotional maltreatment and 1) flexibility (i.e., suggesting more rigid, less flexible interactions) and 2) negative reciprocity depended on the level of observed emotion disclosure or support/validation, four moderation analyses were conducted to test hypotheses 8 through 11 as follows:

- Hypothesis 8: Emotional maltreatment (entered as predictor) would be negatively related to flexibility (entered as outcome), but only at low levels of observed emotion disclosure (entered as moderator).
- Hypothesis 9: Emotional maltreatment (entered as predictor) would be positively related to negative reciprocity (entered as outcome), but only at low levels of observed emotion disclosure (entered as moderator).
- Hypothesis 10: Emotional maltreatment (entered as predictor) would be negatively related to flexibility (entered as outcome), but only at low levels of support/validation (entered as moderator).

- Hypothesis 11: Emotional maltreatment (entered as predictor) would be positively related to negative reciprocity (entered as outcome), but only at low levels of support/validation (entered as moderator).

CHAPTER 4

RESULTS

Preliminary Analyses and Data Reduction

The range of missing cases per study variable was 0 to 10 (0 – 15.9%). Four cases of observational data were missing due to technical errors in video recording. Additionally, 12 CTQ items were missing for ten participants due to administrative error. In order to reduce bias that can occur as a result of listwise deletion, missing values on the CTQ were replaced via individual mean substitution. Previous studies suggest that individual mean substitution is an effective missing data replacement when many or most items per scale are available (Hawthorne & Elliot, 2005; Widaman, 2006); thus, this approach was used to replace values for missing data on the CTQ. Following data replacement, the range of missing cases per study variable decreased 0 to 7 (0-11.5%).

Descriptive analyses were conducted to examine variable distributions including means, standard deviations, and range (see Table 1). Several variables were non-normally distributed (i.e., dispersion, shared positive affect, satisfaction with conflict discussion, history emotional maltreatment) and log 10 transformations were conducted on these variables to reach acceptable levels of skew and kurtosis (i.e., skew between -1.00 and +1.00; kurtosis < 3.00). For variables that were negatively skewed, scores were reversed and the minimum value was adjusted to 1 prior to the log 10 transformation. Despite acceptable levels of skew and kurtosis for all study variables, including transformed variables, tests of normality (Kolmogorov-Smirnov and Shapiro-Wilk) were significant across all variables at the $p < .05$ level, indicative of non-normal variable distributions, which can be common within psychological research (Holmbeck, 1997; Micceri, 1989).

Independent samples *t*-tests were conducted to explore sex differences in the current study. Results indicated that females engaged in significantly greater observed emotion disclosure than males (females: $M = 3.09$, $SD = 1.802$l males $M = 2.31$, $SD = 1.426$; $t(104.3) = -2.532$, $p = .013$); however, average rates of observed emotion disclosure were low to moderately low overall. Levene's test indicated unequal variances for observed emotion disclosure; therefore, degrees of freedom were adjusted from 109 to 104. There were no significant differences between males and females on other self-reported or observed variables (i.e., relationship satisfaction, conflict discussion satisfaction, support/validation, emotional maltreatment). Zero-order correlations were conducted to examine relations 1) among self-reported and observed indicators of relationship functioning, and 2) among observed emotion disclosure, measures of dyadic/SSG observed affect, and self-reported and observed indicators of relationship functioning as hypothesized (see Table 2). Zero-order correlations also examined romantic relationship duration as a possible covariate in analyses. As romantic relationship duration was not significantly related to any study variables, romantic relationship duration was excluded from further analyses.

Description of State Space Grid Variables

Rates of State Space Grid measures of affective flexibility (i.e., dispersion across SSG cells controlling for proportional durations in each cell) and attractor states (i.e., negative reciprocity and shared positive affect), as measured by average duration per region and number of visits to the region, were examined. Couples' overall flexibility across grid states, as measured by dispersion, was moderate ($M = .660$, $SD = .132$), indicating that couples tended to have above average spread across the grid. With respect to the two hypothesized attractor regions of dyadic observed affect (i.e., negative reciprocity and shared positive affect), both the overall duration of time spent in each attractor region as well as the number of visits to the attractor region were examined across the conflict discussion (see Table 3). During the 15-minute discussion, couples on average spent approximately 2.5 minutes engaged in negative reciprocity (i.e., both partners

engaged in either low negative affect or high negative at a given time) and 1 minute engaged in shared positive affect (i.e., both partners engaged in either low positive affect or high positive at a given time). Additionally, couples on average engaged in negative reciprocity approximately 9 separate times and engaged in shared positive affect approximately 9 separate times during the fifteen-minute conflict discussion. Each couple's duration and number of visits to each attractor was standardized and averaged in order to create a single *negative reciprocity* attractor score and single *shared positive affect* attractor score.

Observed Emotion Disclosure and Dyadic/SSG Observed Affect

The first series of analyses examined the relations among observed emotion disclosure and observed and self-reported indicators of relationship functioning, dyadic/SSG observed affect variables (i.e., flexibility and attractor states during the conflict discussion).

Bivariate Correlations. Regarding study hypotheses, it was hypothesized that observed emotion disclosure would be positively related to self-reported and observed indicators of relationship functioning. Consistent with the first hypothesis, observed emotion disclosure was positively related to observed relationship quality (hypothesis 1a) and conflict resolution (hypothesis 1b). Contrary to hypotheses, there was no significant relation between observed emotion disclosure and self-reported relationship satisfaction (hypothesis 1c) or satisfaction with the conflict discussion (hypothesis 1d).

Second, it was hypothesized that flexibility and attractor state variables would be related to observed and self-reported indicators of relationship functioning. Contrary to the second hypothesis, flexibility was negatively associated with observed relationship quality (hypothesis 2a) and conflict resolution (hypothesis 2b). Flexibility was not related to self-reported satisfaction (hypothesis 2c) or self-reported satisfaction with the conflict discussion (hypothesis 2d). Consistent with the third hypothesis, negative reciprocity was negatively related to observed relationship quality (hypothesis 3a) and conflict resolution (hypothesis 3b) as well as self-reported satisfaction with the conflict discussion (hypothesis 3d). Contrary to hypothesis 3c, there

was no significant relation between negative reciprocity and self-reported relationship satisfaction. Exploratory analyses yielded no significant relations between shared positive affect and self-reported and observed indicators of relationship functioning.

Lastly, it was hypothesized that observed emotion disclosure would be 1) positively related to flexibility (hypothesis 4), and 2) negatively related to negative reciprocity (hypothesis 5). Contrary to hypotheses, there were no significant associations between observed emotion disclosure and dyadic/SSG variables, including shared positive affect.

Analysis of Conditional Effects. The moderation option of the SPSS macro PROCESS was used to examine the joint-effect of observed emotion disclosure and support/validation on 1) flexibility and 2) negative reciprocity. Two separate moderation analyses were conducted—one with flexibility as the outcome (hypothesis 6) and one with negative reciprocity as the outcome (hypothesis 7). Contrary to hypotheses, there were no significant joint-effects of observed emotion disclosure and support/validation on outcome variables.

Childhood Emotional Maltreatment and Dyadic Observed Affect

The second series of analyses examined the relations among retrospective self-reports of childhood emotional maltreatment, observed emotion disclosure, and dyadic/SSG observed affect variables (i.e., flexibility and attractor states during the conflict discussion). On average, women and men endorsed relatively low levels of childhood emotional maltreatment (see Table 1).

Bivariate Correlations and Analysis of Conditional Effects. Zero-order correlations revealed no significant correlations among retrospective reports of emotional maltreatment, observed emotion disclosure, and dyadic/SSG observed affect. The moderation option of the SPSS macro PROCESS was used to examine joint-effects of retrospective reports of childhood emotional maltreatment and average observed emotion disclosure on flexibility (hypothesis 8) and negative reciprocity (hypothesis 9). Contrary to hypotheses, there were no significant joint-effects of childhood emotional maltreatment and observed emotion disclosure on dyadic/SSG observed affect variables. Moderation analyses also examined joint-effects of retrospective

reports of childhood emotional maltreatment and average observed support/validation on flexibility (hypothesis 10) and negative reciprocity (hypothesis 11). Contrary to hypotheses, there were no significant joint-effects of childhood emotional maltreatment and observed support/validation on dyadic/SSG observed affect variables.

Table 1

Means, Standard Deviations, and Ranges of Study Variables

	M	*SD*	Min	Max
Observed Emotion Disclosure	2.70	1.67	1.00	7.00
Flexibility	0.66	0.13	0.21	0.86
Negative Reciprocity Attractor	0.00	1.00	-1.31	2.16
Shared Positive Affect Attractor	0.00	1.00	-2.30	1.64
Observed Romantic Relationship Quality	4.59	1.39	1.67	7.00
Observed Conflict Resolution	3.98	1.55	1.00	7.00
S-R Relationship Satisfaction	6.09	0.79	3.43	7.00
S-R Satisfaction with Conflict Discussion	0.00	1.00	-3.12	1.15
Observed Support/Validation	5.00	2.00	1.00	9.00
Emotional Maltreatment	1.58	0.55	1.00	3.90

Note. S-R = self-reported. Possible ranges of scores are as follows: observed emotion disclosure, observed romantic relationship quality, observed conflict resolution, and self-reported relationship satisfaction could range from 1 to 7; observed support/validation could range from 1-9, emotional maltreatment could range from 1-5, and flexibility could range from 0-1. Self-reported satisfaction with conflict, negative reciprocity, and shared positive affect were presented as standardized scores.

Table 2

Bivariate Correlations among Study Variables

	1	2	3	4	5	6	7	8	9	10
1. Observed Emotion Disclosure	--	-.187	-.157	-.162	.305	.370	-.023	.226	.329	-.092
2. Flexibility (Dispersion)		--	.557	.113	-.367	-.361	-.193	-.160	-.291	.126
3. Negative Reciprocity			--	-.492	-.578	-.492	-.263	-.519	-.530	-.107
4. Shared Positive Affect				--	.112	.076	.213	.237	.189	.164
5. Observed Relationship Quality					--	.896	.271	.519	.853	-.056
6. Observed Conflict Resolution						--	.283	.471	.854	-.086
7. S-R Relationship Satisfaction							--	.387	.298	-.434
8. S-R Satisfaction with Conflict								--	.524	-.101
9. Support/ Validation									--	-.147
10. Emotional Maltreatment										--

Note: Values > [.290], $p < .05$; values > [.360], $p < .01$; values > [.470], $p < .001$. For a more conservative interpretation of correlations, a Bonferonni correction was calculated, which recommended a significance of $p < .001$.

Table 3

Visits and Duration of Dyadic Observed/SSG Affect Attractor Regions

	Time (seconds)				Visits			
Dyadic/SSG Attractors	*M*	*SD*	Min	Max	*M*	*SD*	Min	Max
Negative Reciprocity	152.80	145.31	0.00	592.04	9.38	6.83	0	27
Shared Positive Affect	65.01	79.25	0.00	417.12	9.48	9.25	0	43

Note. Time captured the average amount of time couples spent in a particular attractor state during the course of the 15-minute conflict discussion. Visits indicated the number of times a couple entered a particular attractor state. Values are based on SSG measures created from Gridware.

CHAPTER 5

DISCUSSION

Couple emotion communication processes (i.e., emotion disclosure and dyadic/SSG observed affect) within romantic relationships has been linked with relationship functioning, satisfaction, and quality, yet methodological limitations often compromise the ability to capture the complex and dynamic nature of these interactions (e.g., Burr et al., 2013). The current, multi-method study sought to address this limitation by utilizing dynamic systems analyses (i.e., State Space Grid: SSG) to examine dyadic/SSG observed affect as it unfolded during a conflict discussion. More specifically, SSG analyses examined the degree to which a couple shifted from one affective state to another (i.e., flexibility) and the tendency for a couple to be pulled into certain affective or attractor states (i.e., negative reciprocity and shared positive affect in the current study). The study also expanded upon previous literature by examining these variables within dating relationships and through use of observational assessment of emotion disclosure.

The first goal of the current study was to examine relations among observed emotion disclosure, dyadic/SSG observed affect variables, and indicators of relationship functioning. In partial support of hypotheses 1, observed emotion disclosure during conflict was related to observed indicators of relationship functioning, such that higher levels of observed emotion disclosure was related to higher levels of observed relationship quality, including mutual support and enjoyment, openness, sensitivity (hypothesis 1a) and conflict resolution, including cooperative communication, openness to sharing and hearing one another's perspectives, (hypothesis 1b). Contrary to hypotheses, observed emotion disclosure was not related self-reported relationship satisfaction (hypothesis 1c) or satisfaction with the conflict discussion (hypothesis 1d). There also was no significant relation between observed emotion disclosure and dyadic/SSG observed affect variables as predicted in hypotheses 4 and 5.

Given the discrepancy in results regarding self-reported and observed indicators of relationship quality and satisfaction, it is possible that significant relations are due to common-method variance, as those specific variables were coded concurrently and have some shared indicators (e.g., emotion disclosure likely can be perceived as openness to sharing perspectives). The reason for nonsignificant findings between observed emotion disclosure and dyadic/SSG observed affect variables, and self-reported indicators of relationship functioning is unclear. Previous studies have suggested that observed emotion disclosure is linked with relationship satisfaction and intimacy among married couples (Mirgain & Cordova, 2007); thus, it is possible that emotion disclosure within dating couples functions differently from emotion disclosure within marital couples. Alternatively, the lack of significant findings might be due to the low to moderately-low levels of engagement in observed emotion disclosure as well as high self-reported relationship satisfaction within the current sample.

Another goal of the current study was to examine relations among dyadic/SSG observed affect and indicators of relationship functioning. It was hypothesized that 1) the higher levels of affective flexibility would be associated with higher levels of observed and self-reported indicators of relationship functioning (hypothesis 2), and 2) higher levels of negative reciprocity as an attractor state would be associated with lower levels of observed and self-reported indicators of relationship functioning (hypothesis 3). Given inconsistent findings regarding relations between positive affect and romantic relationship functioning and outcomes, analyses regarding the association between shared positive affect as an attractor state and levels of relationship quality and satisfaction were exploratory. Findings partially supported the study hypotheses.

Contrary to hypotheses, affective flexibility during a conflict discussion was negatively, not positively, related to indicators of relationship functioning, such that the more affective flexibility a couple exhibited during the conflict discussion the lower the observed relationship quality (hypothesis 2a) and conflict resolution (hypothesis 2b). There was no significant relation

between flexibility and self-reported romantic relationship satisfaction (hypothesis 2c) or self-reported satisfaction with the conflict discussion (hypothesis 2d). A balance between positive and negative affect during conflict has been linked with marital satisfaction (Balance Model: Gottman et al., 1998), and the measure of flexibility in the current study might not have captured this dynamic. Flexibility captured the spread of dyadic affective states across the interaction, and the more states a couple visited, the greater the possibility the couple might have engaged in affective patterns found to be particularly deleterious to relationship functioning (e.g., disengagement, high negative affect; Gottman, 1979). This explanation is consistent with a previous study examining SSG variables within parent-child dyadic interactions, which found a positive correlation between flexibility and negative emotion (Hollenstein & Lewis, 2006). Thus, future analyses specifically examining a ratio of negative reciprocity to shared positive affect might demonstrate that balance is positively related to relationship quality. Additionally, other indicators of affective flexibility (e.g., average number of transitions per minute) might be a more effective measure of flexibility as it suggests couples are less likely to be stuck within a particular dyadic/SSG observed affect state.

Consistent with hypotheses, the negative reciprocity attractor state was negatively related to observed and self-reported indicators of relationship functioning, such that higher negative reciprocity was associated with lower observed relationship quality (hypothesis 3a), conflict resolution (hypothesis 3b), and lower satisfaction with the conflict discussion (hypothesis 3d). There was a marginally significant relation between negative reciprocity and self-reported romantic relationship satisfaction (hypothesis 3c). Findings generally were congruent with previous literature indicating that higher levels of observed negative affect, including negative reciprocity, in married couples was related to relationship distress and increased risk for subsequent divorce (e.g., Gottman, 1979; Markman et al., 2010). Current findings suggest negative reciprocity not only can be detected in dating relationships but also is indicative of decreased romantic relationship functioning and satisfaction. Exploratory analyses revealed no

significant relation between shared positive affect and either observed or self-reported indicators of relationship functioning. This finding is consistent with previous research suggesting premarital observed positive affect was not predictive of adjustment or satisfaction over a five year period (Markman et al., 2010).

Support/validation of a romantic partner's emotional experiences has been related to increased intimacy and satisfaction within relationships (Mitchell et al., 2008); therefore, it was hypothesized that support/validation in addition to emotion disclosure would be related to adaptive dyadic/SSG observed affect. Specifically, it was expected that observed emotion disclosure would be 1) positively related to flexibility (hypothesis 6), and 2) negatively related to negative reciprocity (hypothesis 7) depending on the level of overall support/validation during the conflict discussion. Contrary to hypotheses, there was no joint-effect of overall observed emotion disclosure and overall support/validation on dyadic/SSG observed affect. One potential explanation for the nonsignificant findings is that previous studies have modeled analyses at the dyadic level, allowing for examination of both emotion disclosure and support within the same couple as it relates to relationship outcomes (Mitchell et al., 2008). Therefore, the current analyses might not be sensitive to the unique dynamics of the individual couples, and future analyses will benefit from replicating the study utilizing dyadic data analyses such as actor-partner interdependence models. Additionally, the current scale of support/validation might not have fully captured responses that were invalidating or unsupportive. Unsupportive responses, rather than supportive responses, to observed emotion disclosure might be particularly problematic for dating couples. For instance, critical responses to emotional expression have been linked with decreased vulnerable expressions in subsequent romantic relationship discussions (Cordova and Scott, 2001).

A final goal of the current study was to examine whether individuals with a history of emotional maltreatment were particularly vulnerable for engagement in problematic dyadic/SSG observed affect state variables (i.e., inflexibility, negative reciprocity attractor state). Further, it

also was hypothesized that emotion disclosure and support/validation would buffer this relation. Contrary to hypotheses, there was no joint-effect of childhood emotional maltreatment and observed emotion disclosure on either flexibility (hypothesis 8) or negative reciprocity (hypothesis 9) as hypothesized. There also was no joint-effect of childhood emotional maltreatment and support/validation on either flexibility (hypothesis 10) or negative reciprocity (hypothesis 11) as hypothesized. It is unclear why hypotheses were not supported in the current study; however, there were relatively low levels of both emotional maltreatment and emotion disclosure in the current sample, which might have attenuated results. Additionally, other factors beyond the scope of the current study might increase or buffer risk for relationship difficulties (e.g., emotion invalidation: Cordova and Scott, 2001). As discussed above, future studies might consider examining relations with specific assessment of emotion invalidation, which has been identified as a potential risk for problematic relationships for individuals with histories of emotional maltreatment (Fruzetti, Shenk, & Hoffman, 2005).

A strength of the current study was the use of dynamic systems analyses (SSG) of dyadic observed affect to support and build upon previous research examining the role of affective communication in romantic relationships. Dyadic/SSG observed affect attractor states extend beyond global ratings or sequential analysis of expressed affect, as SSG analyses not only measure dyadic engagement in affective states as they unfold overtime, but also capture the nonlinear occurrence of these states. Such analyses have been recommended to capture the complex, multidimensional nature of emotional exchanges between partners (Burr et al, 2013; Fincham et al., 2007). By capturing not only the duration of time both partners were in each attractor state but also the number of visits to that state, these variables captured the extent to which couples fell into the given states in real-time. While one known study has examined dyadic observed affect, the study was underpowered to examine relations of dyadic observed affect with other indicators of relationship functioning. Therefore, this is the first known study to examine

affective communication through dynamic systems analyses in relation to romantic relationship functioning.

Within the current sample of predominantly dating couples, negative reciprocity as an attractor state was related to both observed and self-reported difficulties with conflict resolution and observed relationship distress. Alternatively, shared positive affect was not related to relationship functioning. Previous research has examined the differential role of negative and positive affective communication in relation to relationship distress and divorce among married couples, and consistently has found support for the "negativity effect" (Markman et al., 2010), where negative affect, but not positive affect, differentiated distressed versus nondistressed couples (Gottman, 1979; Markman et al., 2010). However, positive affect seems to have a role in marriages over time. For instance, in the context of "enduring" negative affect, the levels of positive affect declined over the first five years of marriage for the distressed but not the nondistressed couples (Huston et al., 2001; Markman et al., 2010). Therefore, positive affect might have a unique role in relationships overtime and be less sensitive to detecting relationship distress early in committed relationships or dating couples.

On average, couples who more flexibly engaged in dyadic/SSG observed affect states were more likely on average to demonstrate less conflict resolution and indicators of relationship quality, including openness, support, and vulnerability. SSG analysis is built upon the assumption that behavior, in this case couple/dyadic observed affect, tends to be homeostatic. Small deviations can occur, but the couple will return to the interaction pattern that is characteristic for that couple. It is possible that in comparison to committed and marital relationships, young adult dating relationships might lack the time and depth for such patterns to develop (Meier & Allen, 2010). This might further explain the findings that flexibility was negatively related to observed, but not self-reported, indicators of relationship quality. Given the novelty of this finding, replication is warranted to further elucidate the relation between flexibility and relationship functioning in both dating and marital relationships.

An additional strength of the current study was the multi-method assessment of several indicators of relationship functioning, including conflict resolution and overall relationship quality, which bolstered the findings in the current study, particularly as negative reciprocity was related to both observed and self-reported indicators of relationship functioning. Additionally, significant correlations between the observed and self-reported indicators suggest some support for construct validity. For instance, there was a significant positive correlation between observed conflict resolution and self-reported satisfaction with the conflict discussion process. Thus, observed and established indicators of conflict resolution seemed to be consistent with couples' expectations about satisfactory conflict resolution processes.

Limitations and Future Directions

Despite the contributions and strengths of the current study, several limitations were noted and should be considered with regard to findings. First, the cross sectional design of the study limits the ability to determine whether certain dyadic/SSG observed affect states result in decreased relationship quality and distress or are the result of such distress. Future studies will benefit from conducting a prospective study to determine whether dyadic/SSG observed affect patterns change over time, as found in studies with marital relationships (e.g., Markman et al., 2010). Additionally, the current study had a relatively small sample of couples and there were low average levels of both observed emotion disclosure and childhood emotional maltreatment as well as high average levels of self-reported relationship satisfaction, which might have attenuated relations among variables. Future studies will benefit from replicating the current study using a larger sample of couples and with increased variability in study variables. However, bootstrapping methods tend to resolve such issues through multiple resamplings of data (Preacher & Hayes, 2004). With a larger sample, structure equation modeling might be beneficial in modeling effects, including differences between men and women. Similarly, the low levels of engagement in neutral disengagement and high negative affect resulted in the elimination of the study variable from analyses. Future analyses might benefit from examining patterns of

dyadic/SSG observed affect states using cluster analyses in order to further identify characteristics of at risk couples as well as to capture engagement in SSG states that have lower frequencies of occurrence (e.g., disengagement, high negative affect) or might not be linearly related to variables (e.g., (Hollenstein, 2013; Hollenstein et al., 2004).

SSG analyses were conducted for observations of dyadic/SSG observed affect states during only one communication context—a conflict discussion. Several studies utilizing SSG analyses with parent-child dyads have examined SSG variables (e.g., flexibility and attractor states) across several interaction tasks (e.g., game, conflict discussion) that were designed to elicit varying patterns of dyadic/SSG observed affect (Hollenstein, Granic, Stoolmiller, & Snyder, 2004; Hollenstein & Lewis, 2006). For instance, Hollenstein and Lewis (2006) found higher rates of negative affect and lower rates of flexibility during conflict interaction tasks when compared to positive interaction tasks. Additionally, rigidity in dyadic/SSG observed affect across discussions characterized dyads that engaged in the same patterns despite changes in context (e.g., conflict versus positive task) and become stuck in a specific attractor state across contexts (Hollenstein et al., 2004). Relatedly, the inability to transition from a conflict task to other tasks has been linked with romantic relationship distress (Gottman & Levenson, 1999). Since one might expect negative affect to occur within the context of a conflict discussion, negative affect during a task designed to elicit positive affect might be more informative in identifying distressed versus nondistressed couples (Fincham, Beach, & Stanley, 2007). Such analyses have potential to further distinguish dyadic/SSG observed affect patterns (i.e., flexibility and attractor states) as they relate to indicators of relationship functioning. Additionally, theoretically and empirically-based adaptive communication processes (e.g., emotion disclosure, support/validation) might buffer couples from rigid interaction patterns across tasks.

Further analysis and identification of additional measures of dyadic/SSG observed affect that are consistent with adaptive and maladaptive relationship functioning might further inform the dynamic process of affective communication across interactions. Consistent with Gottman

and colleagues (1998) examination of de-escalation models (i.e., partner responding to negative affect with neutral or positive affect) might further inform the way in which couples manage conflict. De-escalation can be modeled in SSG analyses by assessing specific transitions from one state to another. Such behavior might be unique to distressed versus nondistressed dating couples.

Regarding the second goal of the current study that examined the role of childhood emotional maltreatment, an ability for a romantic partner to recover from distress related to a conflict task (i.e., low perseveration, low persistent negative affect) has contributed to the other partner's increased self-reported relationship satisfaction and endorsement of positive emotions within the relationship, and this was particularly true for individuals with insecure attachment histories (Salvatore, Kuo, Steele, Simpson, & Collins, 2011). Thus, examination of rigidity in dyadic/SSG observed affect patterns across tasks, particularly when a conflict task precedes a positive task, might elucidate the role of emotional maltreatment as risk for problematic dyadic/SSG observed affect. Further, additional relationship processes might have potential to buffer (e.g., emotion disclosure, support/validation) or increase risk (e.g., invalidation) for rigidity among individuals with histories of childhood emotional maltreatment. Future studies will benefit from re-examining the joint-effect of childhood emotional maltreatment and emotion disclosure in relation to SSG flexibility and attractor states across tasks to explore relations among these constructs.

Conclusions from the current study contribute to the extant literature examining affective processes within young adult romantic relationships. While negative affect consistently has been identified as risk for marital distress and dissatisfaction, the current study indicates that negative reciprocity also is problematic within dating relationships and has potential to carry over into more committed relationships and marriage via the "negativity effect" (Markman et al., 2010; Seiffge-Krenke, 2003). Thus, future studies will benefit from further examination of vulnerability and protective factors in order to mitigate ongoing difficulties within relationships and later marriages.

Findings also have potential to inform prevention and intervention efforts for adolescents and young adults that are designed to promote adaptive communication strategies and reduce the escalation of negative reciprocity. Given the relation between adolescent/young adult relationship distress and individual distress/psychopathology (Furman & Collibee, 2014), such interventions have benefits that extend beyond the context of the romantic relationship (Collins, Welsh, Furman, 2009). More recently, initiatives (e.g., CDC's Dating Matters) and relationship education programs have been adapted and developed to promote healthy adolescent and young adult relationships with some success (e.g., Relationship Smarts Plus, Pearson, 2007). For instance, Relationship Smarts Plus provided skills in several areas, including understanding of romantic relationships, knowledge about dating processes, communication skills, and marriage and future planning (Pearson, 2007) and participants demonstrated increased confidence in conflict resolution skills at the end of the program with high school students (Kerpelman, Pittman, Adler-Baeder, Eryigit, & Paulk, 2009). Additionally, a program for college students based on Emotionally Focused Therapy (EFT) principles has demonstrated promising outcomes related to increased relationship satisfaction and trust between partners (Stavrianopoulos, 2015). Thus, for individuals that struggle with expressing emotional experiences, such programs might be particularly helpful given the focus on emotional understanding, support, and vulnerability. Overall, increasing adolescents' and young adults' understanding of both adaptive and maladaptive relationship processes may reduce risk for maladaptive relationship patterns before partners choose to marry.

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APPENDIX A

EMOTION DISCLOSURE CODING SCALE

The Emotion Disclosure scale assesses an individual's ability to identify, label, and express understanding of one's own emotional experience. It is not inferred emotional understanding, but the verbal communication of the emotional experience. The accuracy of the individual's emotion identification is not required. Individuals high on the scale will verbally label and identify their own emotions, communicate the causes and effects of the emotions, and identify extend emotions (e.g., identify related emotions—"You also seemed sad."). Individuals at the middle of the scale consistently identify and label their own emotions, but rarely identify the causes and consequences of the emotions. Individuals at the low end of the scale identify few or no emotions.

Lower-Order Emotion Disclosure

- Labels and identifies emotions

Higher-Order Emotion Disclosure

- Communicates understanding for cause of emotion
- Communicates effect of emotional experience
- Extends emotional experience

7—VERY HIGH EMOTION DISCLOSURE—The individual consistently communicates his/her emotional experience (labels, identifies causes and consequences) throughout topics of discussion. Extending emotions during topics of discussion would be an example of the higher-order skills displayed by an individual who would rate as a 7.

6—HIGH EMOTION DISCLOSURE —The individual engages in both lower- and higher-order emotion disclosure skills. The individual communicates most of his/her emotional experience. This individual engages in consistent labeling of emotions and frequent identification of causes

and consequences of emotions. Individuals may extend some emotions. However, there is a missed opportunity to communicate emotion disclosure skills.

5—MODERATELY HIGH EMOTION DISCLOSURE — The individual engages in both lower- and higher-order emotion skills. This individual engages in consistent labeling of his/her emotions AND identifies *at least two* cause or consequences of his/her emotions. This individual does not extend his/her emotions.

4—MODERATE EMOTION DISCLOSURE —The individual consistently labels, identifies and verbalizes his/her emotions OR the individual sometimes labels his/her emotions *and* communicates one cause or effect of emotional experience.

3—MODERATELY LOW EMOTION DISCLOSURE —The individual identifies and labels several emotions. This individual does not engage in higher order emotion disclosure.

2—LOW EMOTION DISCLOSURE —The individual rarely identifies and labels his/her emotions (1-2 times). This individual does not engage in higher order emotion disclosure.

1—VERY LOW EMOTION DISCLOSURE —There is no evidence that the individual identified, labeled or communicated his/her emotional experience during the conversation.