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It's Not Me It's You: Examining the Link Between Partner-Schema Organization, Relationship Functioning, and Depressive Symptoms

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Abstract

Depression is associated with a host of interpersonal difficulties, particularly within intimate relationships. While a significant body of literature has supported the presence of a highly consolidated negative self representation or “self-schema”, no studies have examined whether depression is also associated with a highly organized negative “partner-schema”, and whether this represents a risk factor for relationship distress. Given the high degree of similarity between cognitive representations of self and close others, it was predicted that depression would be associated with a partner-schema structure mirroring that of the self-schema: an organized cognitive structure characterized by tightly interconnected negative information, and loosely dispersed positive information. In a sample of 291 undergraduate students, results supported this hypothesis, and revealed that partner-schema structure was associated with relationship quality and attributions about a partner’s behaviours. These findings have important implications for understanding the link between cognitive risk factors, relational dysfunction, and depressive symptoms.

Keywords: depression; interpersonal difficulties; cognitive schemas; relationship dysfunction; attributions

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It's Not Me It's You: Examining the Link Between Partner-Schema Organization,
Relationship Functioning, and Depressive Symptoms

Depression has been linked to a host of interpersonal difficulties. An emerging literature stemming from cognitive and interpersonal models of the disorder suggests that interpersonal difficulties are both contributors to, and consequences of, depression (e.g., Davila, Karney, Hall, & Bradbury, 2003). For example, depression has been associated with social skills deficits, social avoidance, greater interpersonal stress, and reduced social support (see Hames, Hagan, & Joiner, 2013, for review). Although these difficulties have been examined across a variety of interpersonal contexts, romantic relationships are perhaps those most critically affected by such processes (Starr & Davila, 2008). Indeed, an association between depression and romantic relationship distress has long been documented in the literature. In a sample of depressed women, for instance, Paykel and colleagues (1969) found that relationship difficulties were the most frequently reported events occurring prior to the onset of depression. In community samples, premarital depressive symptoms have been shown to predict declines in marital satisfaction during the first year-and-a-half of marriage (Beach & O'Leary, 1993). Moreover, Whisman and Bruce (1999) found that dissatisfied relationship partners were 2.7 times more likely than satisfied ones to meet criteria for the diagnosis of a major depressive episode one year later. Similar findings in support of the relation between depression and relationship difficulties have been reported across a multitude of studies in more recent years (e.g., Du Rocher, Papp, & Cummings, 2011; Najman et al., 2014; Rehman, Ginting, Karimiha, & Goodnight, 2010; Sheets & Craighead, 2014).

Not only is relationship distress quite common in depression (Atkins, Dimidjian, Bedics, & Christensen, 2009), research suggests it may have deleterious effects on treatment response, both to psychotherapy (Addis & Jacobson 1996; Quilty, Mainland, McBride, & Bagby, 2013; Renner et al., 2012) and pharmacotherapy (Bromberger, Wisner, & Hanusa, 1994), and may also increase risk for depressive relapse (e.g., Jacobson et al., 1993; Whisman, 2001). Given the effects of relationship distress on the course of depression, it is critical to identify potential risk factors that may contribute to diminished relationship quality. As a result, researchers have called for the application of cognitive-behavioural theories of depression to understand potential contributors to interpersonal dysfunction in the disorder (Dobson, Quigley, & Dozois, 2014). As cognitive-behavioural therapy continues to be a prominent first-line treatment for depression (Dozois et al., 2014), research examining interpersonal difficulties within this theoretical framework may be an especially important contribution to the literature. As such, a potentially fruitful area of research is to examine the cognitive vulnerabilities underlying interpersonal difficulties related to depression.

Cognitive Theories of Depression

Cognitive theories of depression posit that maladaptive beliefs, thought patterns, and negatively biased appraisals of one's experiences contribute to the symptoms of this disorder. One of the most influential cognitive models of depression was proposed by Aaron T. Beck (Beck, 1967; Beck, Rush, Shaw, & Emery, 1979). According to Beck's cognitive theory, depressed individuals have a tendency to view themselves, their personal world, and their future in a negative manner. Specifically, they tend to view the self as defective, inadequate, and worthless; their personal world as harsh, defeating, and

demanding; and the future as marked by suffering and failure. Beck referred to this pattern of beliefs as *the cognitive triad*, and stated that these negative beliefs contribute to the onset and maintenance of depressed mood.

Beck's model emphasizes differing levels in a hierarchy of cognition, ranging from the most to least consciously available. At the most consciously available, or 'surface level' of cognition, is an individual's conscious stream of thoughts that automatically enter awareness. These surface level cognitions are purported to stem from less consciously accessible cognitive processes and structures (Dozois & Beck, 2008; Dozois, Frewen, & Covin, 2006; Dozois & Rnic, 2015). In particular, a central component of Beck's cognitive model of depression is that ongoing negative surface-level thought patterns stem from highly organized, deeper cognitive structures, known as *schemas*. Cognitive schemas can be defined as "the basic structural components of cognitive organization through which humans come to identify, interpret, categorize, and evaluate their experiences" (Schmidt, Schmidt, & Young, 1999, p.129). That is, schemas are cognitive templates that individuals develop based on past experiences, which are subsequently activated and used to guide the processing of one's current experience. When an individual encounters a particular situation, the schema for that situation is subconsciously activated, and then used to filter and encode the incoming stimuli confronting that individual. Thus, a schema represents a highly individualized lens through which an individual interprets and experiences his or her surroundings (Beck et al., 1979).

According to Beck's cognitive theory, individuals with depression possess highly negative underlying self-schemas that subsequently lead to faulty information processing

(Beck, 1967; Beck et al., 1979). The processing of incoming information is biased in depression such that individuals disregard schema-inconsistent information (e.g., positive information) and readily process information that is consistent with and reinforcing of their underlying schemas (i.e., negative information). This selective processing of negative information leads to a continuous stream of consciously available negative thought patterns and systematic distortions in thinking. For instance, individuals with depression tend to make broad, globally negative judgments about the world around them (Beck et al., 1979). They tend to possess a specific *attributional style*, or pattern of interpreting the causes of events, that only serves to maintain distress over time (Klein, Fencil-Morse, & Seligman, 1976). In particular, depressive symptoms have been linked to the tendency to attribute negative life events to one's own stable and global internal qualities, and to attribute positive events to external, specific, and unstable causes (e.g., Alloy et al., 2006). Pertinent to the focus of the current study, research also suggests that depression is associated with the tendency to make similar kinds of attributions about romantic partners' negative behaviours, referred to in the literature as causal and responsibility attributions (as defined by Fincham & Bradbury, 1992). Causal attributions refer to the tendency to place the cause of negative behaviours within the partner, view the cause as stable and unchanging, and perceive it to have a global influence on many aspects of the relationship. Responsibility attributions refer to the tendency to believe that a partner deliberately intended to engage in the negative behaviour, was motivated to do so, and deserved to be blamed for the behaviour. Depressive symptoms have been linked to both causal and responsibility about a partner's negative behaviour (Heene, Buysse, & Van Oost, 2005; 2007). These types of attributions, in turn, contribute to negative mood

and further reinforce underlying negative beliefs and schema structures (Persons & Rao, 1985).

The Role of Schema Structure: Cognitive Organization and Spreading Activation

Schemas are conceptualized in the literature as consisting of both content and structure (Dozois & Rnic, 2015). As described above, Beck's cognitive theory asserts that the content of the self-schema is highly negative in individuals with depression.

Furthermore, research suggests that the way in which a schema's content is organized also has important implications for cognition. *Schema structure*, or *cognitive organization*,

refers to the degree of interconnectedness or consolidation of content within the schema (Dozois & Beck, 2008). The importance of the degree of

interconnectedness is perhaps best understood in the context of spreading activation and semantic network models of cognition (e.g., Bower, 1981). These models assert that a given schema concept (e.g., the self-schema) is represented in memory by a cluster of interconnected characteristics (e.g., alone, ineffective, sad) associated with that concept.

These descriptive characteristics, referred to as *nodes*, are connected to one another to form an associative network. When a given schema concept is triggered (e.g., by internal or external cues), a spreading occurs from one node to another via the associative connections between them. The contents of an individual's conscious thoughts and affect are therefore a result of the particular schema characteristics or nodes that are currently activated (Bower, 1981). That is, an individual's moment-to-moment conscious experience of thoughts, attributions for events, and changes in affect occur because underlying schema structures and associated nodes are activated. Consequently, though

schemas operate outside of conscious awareness, they have a profound influence on one's conscious thoughts and emotions (Beck, 1967; Beck et al., 1979).

The degree to which negative information forms a highly consolidated associative network of interconnected nodes may be particularly important in understanding the self-schema in depression (Dozois, 2002, 2007; Dozois & Dobson, 2001a, 2001b). Research suggests that, compared to healthy controls, the cognitive organization of individuals with depression is characterized by more tightly interconnected negative and more loosely interconnected positive information about the self (Dozois, 2007; Dozois & Dobson, 2001b; Dozois, Eichstedt, Collins, Phoenix & Harris, 2012). The degree of consolidation in schema structure is thought to be a relatively stable vulnerability factor. That is, while negatively biased information processing and surface level cognitions observed in individuals with depression tend to ameliorate as depressive symptoms remit, cognitive organization remains fairly stable despite symptom improvement (e.g., Dozois, 2007). Interestingly, although the cognitive structure of negative self-referent information has been examined across different content domains, the organization of negative interpersonally related information about the self appears to be a particularly robust and stable predictor of depressive symptoms (Dozois, 2007; Dozois & Dobson, 2001a). That is, the organization of interpersonal information (e.g., being rejected, alone, unlovable) is more consistently and stably linked with depression than non-interpersonal, achievement oriented information (e.g., being a failure, incompetent). Given the importance of interpersonal schema content and the effects of underlying schemas structures on an individual's thoughts and emotions, it is

likely that relational schemas hold a powerful influence over affect and cognition within the context of intimate relationships.

Relational Schemas and Significant-Other Representations

Outside of the context of depression, cognitive theories have been used to conceptualize the role of schemas in romantic relationships. For instance, Beck (1988) applied his cognitive model to relationship difficulties and asserted that negative schemas may contribute to certain types of distress-maintaining assumptions about oneself and one's partner in romantic relationships. Similar to Beck's model, Baldwin (1992, 1995) defined *relational schemas* as cognitive representations that individuals develop based on regularities in relational patterns. These relational schemas are thought to allow individuals to predict which self-generated behaviours will elicit which types of responses from a partner (e.g., "If I get angry, my partner will reject me;" Baldwin, 1995). Thus, Baldwin's (1992, 1995) relational schemas include both a self-schema and an other-schema that are closely intertwined, yet distinct from one another. Building on Baldwin's theory of relational schemas, Whisman and Delinsky (2002) attempted to focus on the component of *partner-schema*. These researchers defined partner-schemas as "conceptualizations of one's romantic partner, derived from past experience, which organize and guide the processing of partner-related information" (p. 51; Chatav & Whisman, 2009). Indeed, research in the area of social cognition has long suggested that individuals create highly organized cognitive representations of both the self and familiar others (e.g., Kuiper, 1982; Kuiper & MacDonald, 1982; Kuiper & Rogers, 1979). With regards to representations of significant others in particular, these schemas are *n-of-1 exemplars* (Linville & Fischer, 1993; Smith & Zarate, 1992) that represent a specific and

unique individual rather than a representation of other people in general (Andersen & Saribay, 2005). The complexity of significant-other representations has been shown to mirror the complexity of self-representations (Brown, Young, & McConnell, 2009). Moreover, cognitive representations of significant others often overlap with and are included in an individual's self-representation (Aron, Aron, & Smollan, 1992; Aron, Aron, Tudor, & Nelson, 1991; Aron, Lewandowski, Mashek, & Aron 2013; Aron et al., 2004; Finkel, Simpson, & Eastwick, 2017; Slotter & Gardner, 2009). Consequently, partner-schemas are closely linked with the self-schema and thereby with emotions, expectancies, and motives (Andersen & Saribay, 2005).

Attachment Theory: Indirect Support for the Role of Partner-Schemas

A distinct yet related body of literature that provides indirect support for the importance of partner-schemas is the conceptualization and research outlined by John Bowlby's (1973) attachment theory. Bowlby (1973) proposed that an individual's successes and failures in reliably obtaining support and comfort from caregivers lead to the development of mental representations about the self and close others, called 'internal working models.' Though the tenets of attachment theory were initially designed for and applied to infants, this body of research has evolved to show that these working models and resultant attachment styles powerfully impact romantic relationships (Hazan & Shaver, 1987; Pietromonaco & Beck, 2015). The way an individual is treated by significant others shapes the expectations, attitudes, and behaviours towards partners and relationships in the future. In particular, negative working models subsequently colour individuals' perceptions of the self and romantic partners in a way that is consistent with their expectations. As such, Beck's cognitive structures are not unlike the internal

working models described in Bowlby's attachment theory. Indeed, attachment theory has been "widely recognized as providing important theoretical insights into the cognitive processes that produce depression vulnerability" (Ingram, 2003, p. 79).

Individuals who have developed negative working models of the self and others are considered to have insecure attachment styles (Bowlby, 1973). A significant body of literature suggests that insecurely attached individuals experience a number of difficulties in their relationships. For example, insecure attachment is associated with lower levels of relationship commitment, reduced satisfaction, and maladaptive communication patterns (e.g., *demand and withdraw* cycles; see Mikulincer & Shaver, 2007 for review). Attachment insecurity has also been linked to more pessimistic expectations about a romantic partner's behaviour, as well as the tendency to attribute negative partner behaviours to stable, global, and negatively motivated intentions (see Hazelwood, 2012, for a review). Given the overlap between Beck's schemas and Bowlby's working models, research on internal working models may be a useful proxy for underlying self and partner schemas, and would suggest that partner-schemas may be similarly associated with various aspects of relationship quality (i.e., satisfaction, commitment) and attributions about one's partner.

In addition to the link between partner-schemas and relationship quality, the attachment literature also provides indirect support for the role of partner-schemas in depression. First and foremost, attachment theory was formulated as a theory of psychopathology (Bowlby, 1973). As such, attachment theory is relevant and applicable to the understanding of a number of disorders, including depression. Bowlby (1980) emphasized the role of affect in internal working models, as they are thought to contain

important information about interpreting and regulating emotional experiences with significant others. Therefore, working models store affective information and are highly linked to changes in affect. Interestingly, the attachment literature suggests that having both negative working models of self and other (rather than one or the other; often referred to as a ‘fearful attachment style’) is most consistently associated with higher levels of depression (Murphy & Bates, 1997; Permy, Merino, & Fernandez-Rey, 2010; Wilkinson & Mulcahy, 2010). As such, it is possible that negative underlying representations of the self and close others confer vulnerability to both relationship difficulties as well as depressive symptoms.

Partner-Schemas and Interpersonal Functioning in Romantic Relationships

No studies to date have examined the role of partner-schema structure in relationship difficulties within the context of depression; however, findings from studies examining the role of partner-schemas and relationship quality in healthy couples may be used to inform an understanding of the ways in which partner-schemas can influence relationship difficulties in the disorder. Of the few studies that have examined this association, several have used a card-sorting task (as adapted from Linville, 1985) to examine the degree of complexity of the partner-schema structure. In this task, participants receive a deck of cards that they are asked to sort into a series of piles. Each card contains one adjective, and participants are instructed to sort the adjective cards into piles that they believe cluster together in describing different aspects of their romantic partners. Using the card-sorting task, Reifman and Crohan (1993) reported that greater attribute redundancy (using the same attributes to describe multiple aspects of the partner) was associated with greater relationship quality, as evidenced by more positive

and less negative affect towards the partner, and greater self-reported likelihood of staying with one's partner. The authors interpreted these results as evidence that using similar attributes to conceptualize different aspects of a partner may allow the individual to maintain a more consistently positive view of the partner. Conversely, viewing a partner in terms of independent dimensions may increase the accessibility of negative partner information. In other words, the way in which information about a partner is organized is thought to influence the accessibility of positive and negative characteristics, subsequently influencing various facets of relationship quality.

Building on this work, Showers and Kevlyn (1999) used the card-sorting task to examine the link between relationship quality and the degree to which positive and negative information about one's partner was integrated or compartmentalized. *Integration* refers to the degree to which positive and negative traits are combined together in a given partner-aspect; *compartmentalization* occurs when the attributes associated with any given partner-aspect are uniformly positive or uniformly negative (Showers, 1992). The authors suggested that the way in which a schema is organized (either integrated or compartmentalized) influences the degree to which positive and negative beliefs are accessible when a given partner-aspect is activated. When negative partner-concepts are activated, compartmentalized structures are thought to result in the individual being flooded with negative beliefs and attitudes about one's partner, thereby contributing to negative mood. Conversely an integrative structure helps to ensure the accessibility of positive beliefs, thereby minimizing the impact of negative partner traits. Thus, integrative organization was expected to facilitate a less negative view of the partner than compartmentalization. Results supported these hypotheses, as greater

integration of positive and negative beliefs about a partner were associated with more positive attitudes of liking and loving towards that partner, more positive attributions for negative partner behaviours, and higher reported relationship quality (Showers & Kevlyn, 1999). Campbell, Butzer, & Wong, (2008) extended Showers and Kevlyn's (1999) work by attempting to replicate findings in married dyads while using objective, behavioural measures of relationship quality. The authors found, as predicted, that integrated schema structures were associated with greater marital quality (as observed and self-reported by wives). Additionally, two studies examined whether integrative structure predicted relationship status at 1-year follow up, but found inconsistent results. Specifically, Murray and Holmes (1999) found that integrated partner-schema structures were associated with relationship longevity and that compartmentalized structures predicted relationship dissolution, whereas Showers and Ziegler-Hill (2004) found the opposite pattern of associations. As such, the organization of information about a romantic partner appears to be linked to relationship quality and longevity; however, the precise nature of this association and how it unfolds over time remains unclear.

As an alternative to card-sorting measures of partner-schemas, information-processing measures have been used to operationalize partner-schemas. For example, Whisman and Delinsky (2002) used an incidental recall paradigm designed to tap into general positive and negative representations of one's current partner. This measure used both self-rating (i.e., initial endorsement of adjectives) and information-processing (i.e., recall of adjectives that had been initially endorsed) indices of positive and negative partner-descriptive adjectives. Whisman and Delinsky (2002) found that, for both husbands and wives, marital satisfaction was positively associated with endorsement of

positive partner-descriptive adjectives (which the authors considered to be reflective of an underlying positively-valenced partner-schema), and negatively associated with endorsement and recall of negative partner-descriptive adjectives (considered to be reflective of an underlying negatively-valenced partner-schema). Taken together, these findings suggest that a negative partner-schema is associated with reduced marital satisfaction.

Chatav and Whisman (2009) used a similar method to examine the effects of partner-schemas on relationship functioning in dating couples. The authors utilized the same incidental recall paradigm to examine the ratio of positive to positive-plus-negative partner cognitions endorsed as a measure of partner-schema. The researchers examined whether partner-schemas were associated with overall relationship satisfaction and dysfunctional cognitive attributions about one's partner. Results suggested that a higher ratio of positive partner endorsements (reflecting a positively-valenced partner-schema) was associated with greater relationship satisfaction and fewer distress-maintaining attributions about one's partner (Chatav & Whisman, 2009).

The aforementioned studies have primarily focused on the role of partner-schemas without taking into consideration the significant effects of self-schemas on affect and cognition. Given the importance of self-schema structures, it may be pertinent to examine whether partner-schema structures are robust enough to be predictive of relationship outcomes above and beyond the self-schema. As mentioned previously, research suggests that an individual's cognitive representations of self and close others become merged with one another. Not only does structural similarity (Brown et al., 2009) and processing efficiency (e.g., Kuiper & Rogers, 1979) increase with closeness, research also suggests

that self and partner representations actually become cognitively intertwined. For instance, the self and other are thought to become integrated into one cognitive category (Aron et al., 1992; Aron et al., 1991; Aron et al., 2004), such that “much of our cognition about the other in a close relationship is cognition in which the other is treated as self or confused with self” (Aron et al., 1991, p. 242). Indeed, research supports this notion of cognitive confusion between self and close others (Aron et al., 1991; Mashek, Aron, & Boncimino, 2003), and suggests that the same areas of the brain are used for processing information about oneself and about close others, but not with unfamiliar others (Cheng et al., 2010; Kang, Hirsch, & Chasteen, 2010). For this reason, it may be particularly important to examine whether partner schema structure uniquely predicts relationship variables above and beyond the effects of self-schemas on affect and cognition. Given the high degree of cognitive overlap between self and close others, it is possible that a partner-schema may not be uniquely predictive of relationship variables above and beyond the powerful effects of the self-schema. If, however, partner schema structure maintains its association with relationship variables while controlling for the effects of the self-schema, this would suggest that partner schema structures might play a particularly important role in interpersonal difficulties in depression.

The Current Study

While most research has focused on the role of the self-schema in depression, there is ample evidence to suggest that schemas held about significant others may be particularly germane to understanding interpersonal difficulties in the disorder.

Cognitive-behavioural theories of depression suggest that negatively biased representations of the self and others may contribute to interpersonal difficulties and

depressive symptoms (see Dobson et al., 2014). Indeed, Evraire and Dozois (2014) found that schema content, or core beliefs, about self and others predicted interpersonal dysfunction in individuals with depression. Interpersonal variables are the most powerful predictors of depression (e.g., Sheets & Craighead, 2014), yet examinations of the manner by which people think about and process interpersonal relationship stimuli are relatively under-investigated in the context of this disorder (Gadassi & Rafaeli, 2015). This dearth of research is surprising given the association between depression and relationship distress. An integration of cognitive and interpersonal vulnerabilities could lead to a potentially fruitful new program of research dedicated to understanding the role of cognitive schemas of self and one's partner in relationship dysfunction in depression. As such, the purpose of the present study was to begin to bridge this gap in the literature by examining whether depression is associated with a particular partner-schema structure, and whether partner-schema structure is uniquely associated with relationship dysfunction above and beyond the self-schema. The specific research questions and hypothesized results are expanded below.

Are partner-schemas associated with depressive symptoms?

The first aim of this study was to examine whether depression was associated with an organized schema structure for a current romantic partner. Given the role of the cognitive triad in depression (Beck et al., 1979), the tendency to view one's personal world in a pervasively negative manner could conceivably be extended to an individual's view of his or her romantic partner. Moreover, given the degree of overlap between cognitive representations of the self and close others (e.g., Aron et al., 1992), it is reasonable to expect that one's partner-schema would be similar in organization to one's

self-schema. Indeed, research suggests that individuals project their own positive or negative self-evaluations on to romantic partners, both explicitly and implicitly (DeHart, Pelham, Fiedorowicz, Caryallo, & Gabriel, 2011). Additionally, previous research examining representations of self and meaningful others has shown that increased closeness and familiarity with others is associated with similarities between structure (Brown et al., 2009) and encoding processes (Kuiper, 1982). As such, depression was hypothesized to be associated with a partner-schema structure mirroring that of the self-schema (i.e., a partner-schema structure consisting of highly interconnected negative and more diffuse positive content).

Are partner-schemas associated with relationship quality?

Another aim of this study was to examine whether partner-schema structure was associated with facets of relationship quality, such as relationship adjustment, satisfaction, and commitment. These constructs are important predictors of relationship duration or dissolution (e.g., Le, Dove, Agnew, Korn, & Mutso, 2010), and thus are useful variables to investigate given the importance of maintaining supportive relationships in depression. Given that past research suggests that partner-schemas are linked to various aspects of relationship quality (Campbell, Butzer, & Wong, 2008; Chatav & Whisman, 2009; Reifman & Crohan, 1993; Showers & Kevlyn, 1999; Whisman & Delinsky, 2002), the association between partner schema structure and relationship functioning was expected to replicate in the current study. It is important to note, however, that this study expanded on the existing literature in two ways.

First, the current study examined partner-schema organization as measured using the Psychological Distance Scaling Task (PDST; Dozois & Dobson, 2001a, 200b). A

number of the previous studies examining the link between partner-schemas and relationship functioning have relied primarily on measures designed to tap into a schema's valence and its effects on information processing. These particular measures are thought to be reflective of underlying schema content, activation, and information processing rather than the actual structure of the schemas *per se*. While schema content is important, the way in which a schema's content is organized is also of value, particularly in the context of depression (Dozois, 2002, 2007; Dozois & Dobson, 2001a, 2001b). As such, this study extended the literature by using a measure designed to tap into cognitive organization and the degree of interconnectedness between positive and negative partner characteristics. A second contribution to the literature is that this study is the first to examine whether partner-schema structure is predictive of relationship distress above and beyond the self-schema. As cognitive representations of self and close others are inextricably linked, the examination of whether or not partner schemas can predict relationship functioning above and beyond self-schemas is a particularly stringent one.

Are partner-schemas associated with attributions about a partner's behaviour?

The final aim of this study was to examine whether partner-schema structure was associated with distress-maintaining attributions about negative partner behaviours. Briefly, recall that spreading activation models of schema-related cognition posit that activation spreads more readily across schema nodes that are more closely interconnected. Therefore, when a negative relationship event "activates" an underlying negative schema structure for one's romantic partner, more closely interconnected negative nodes should facilitate more readily available negative cognitions about the partner. In other words, the more tightly interconnected the schema nodes, the stronger

the associative linkages, and the more efficiently the activation spreads through the network of negative traits, thus resulting in a highly negative stream of conscious thoughts and affect related to one's partner. Conversely, a more diffuse network of positive characteristics would result in less efficient spreading of activation across positive partner information. Thus, a more tightly interconnected negative partner-schema was predicted to be associated with the tendency to make more distress maintaining attributions about a partner's negative behaviour. Two studies have examined and found support for the link between partner-schemas and attributions (Chatav & Whisman, 2009; Showers & Kevlyn, 1999). As such, the current study expands upon this by seeking to replicate this finding using the PDST, and by examining whether the association between partner-schema structure and attributions holds above and beyond the effects of self-schema.

Methods

Participants

The sample was comprised of 296 undergraduate students recruited from the University of Western Ontario's psychology research participant pool. All participants were required to be currently in a romantic relationship of at least 3 months duration at the time of participation. Four participants were excluded because they reported not currently being in a romantic relationship, and one participant was excluded because she required an electronic language translator to complete the study, leaving a sample size of 291 participants for analyses. The average age of participants was 18.76 ($SD = 2.61$), and the average relationship length was 17.86 months ($SD = 18.88$). The majority of participants reported being in a committed relationship; however, some reported their

relationship status as “open”. The majority of relationships were heterosexual. The ethnic makeup of the sample was predominantly Caucasian (60.5%). Of the sample, 72.9% were female; 18.2% reported receiving therapy and 9% reported receiving medication for a mental disorder. A detailed breakdown of the demographic characteristics of the sample is presented in Table 1. Participants received 2.0 course credits in exchange for their participation in the study.

Materials

Demographics Questionnaire. A basic demographics questionnaire was constructed and administered to participants to assess demographic (e.g., age, gender, ethnicity, relationship status) and clinical variables (e.g., history of treatment for mental disorder) relevant to this study.

Beck Depression Inventory–II (BDI-II; Beck, Steer, & Brown, 1996). The BDI-II was used to assess the severity of depressive symptomatology. The BDI-II demonstrates good test-retest reliability, excellent internal reliability, and excellent content, construct, concurrent, and discriminant validity (see Dozois & Covin, 2004, for a review). This measure consists of 21 self-report items, with total scores ranging from 0 to 63. Participants are asked to rate a series of items on a 4-point scale that ranges from 0 (*symptom not present at all*) to 3 (*symptom is severely present*) based on their mood over the last 2 weeks. A total score is calculated by summing across all items, where higher scores reflect greater depressive symptom severity. In the current sample, the internal consistency (Cronbach’s alpha) for this instrument was .92.

Psychological Distance Scaling Task (PDST; Dozois, 2002, 2007; Dozois & Dobson, 2001a, 2001b). The PDST was used to assess the structure of self- and partner-

Table 1
Sample Demographic Characteristics

Variable	<i>n</i>	%
Gender		
Male	78	26.8
Female	212	72.9
Transgender	1	0.3
Ethnicity		
White	163	56.0
Chinese	52	17.9
S. Asian	23	7.9
Other	35	12.0
Multi-ethnic	16	5.5
Past Therapy	53	18.2
Past Medication	27	9.3
Preference		
Heterosexual	264	90.7
Homosexual	1	0.3
Bisexual	16	5.5
Queer	3	1.0
Uncertain/Questioning	4	1.4
Choose not to Answer	2	0.7
Other	1	0.3
Relationship Status		
Casually dating	26	8.9
Open relationship	10	3.4
Exclusively dating	241	82.8
Engaged	3	1.0
Common-law	8	2.7
Married	3	1.0

schemas. Participants completed two versions of the task; the original version was used to assess organization of self-schema, and an adapted version was created to assess organization of partner-schema. In the original version of this task, participants are presented with a 21.5 cm by 23 cm rectangular grid on a computer monitor. In the middle of this grid is a horizontal line, anchored with the statements *Not at all like me* on the left side of the grid and *Very much like me* on the right. A vertical line is also shown in the middle of the grid with the anchors *Very positive* at the top of the grid and *Very negative* at the bottom. As such, the x-axis represents an adjective's degree of self-reference, and the y-axis reflects the adjective's valence. Adjectives are presented one at a time in the centre of the grid, and respondents are instructed to move the mouse to the position on the grid that best characterizes the degree of self-relevance and degree of valence of the word. After each adjective placement, the participant is presented with a new grid and adjective until all 60 adjectives have been rated. The x- and y-axis coordinates for each adjective placement are recorded by the computer and used for scoring. In the adapted partner-version of this task, participants completed the same procedure as outlined above, but positioned adjectives in the grid based on the degree of partner-relevance with the horizontal anchors of *Not at all like my partner* and *Very much like my partner*. The same list of 60 adjectives was presented for both the self and partner versions of the task; words were presented to participants in a random order. Participants completed 4 practice trials and 120 experimental trials (60 trials for partner ratings, and 60 trials for self ratings).

The stimuli for the PDST were comprised of 60 adjectives (30 positive and 30 negative; see Appendix C for word list). Positive and negative word lists were selected

from a list of previously used stimuli for this task and were matched on the average frequency of word use in the English language, word length, emotional intensity, and imaginability (Dozois 2007; Dozois & Frewen 2006). In order to examine the degree of schema interconnectedness of self- or partner-relevant information, the x/y coordinate point for each adjective was used to calculate the average interstimulus distances between adjectives. The average interstimulus distances for the self-referent positive and negative adjectives for each participant were then calculated using an idiographic formula (a more detailed explanation of this formula and the development of the PDST can be found in Dozois & Dobson, 2001b; Seeds & Dozois, 2010). Four interstimulus distance scores were calculated for each participant: self positive, self negative, partner positive, and partner negative. Greater distance among adjectives is believed to indicate less interconnectedness or consolidation of information, whereas less distance is thought to reflect greater interconnectedness or consolidation (Dozois & Frewen, 2006). The psychometric properties of the PDST have been supported in previous studies (Crits-Christoph, Gallop, Diehl, Yin, & Gibbons, 2017; Dozois, 2002, 2007; Dozois & Dobson, 2001b). The PDST has been used in a variety of studies assessing schema structure in depressive and non-depressive samples (Dozois, 2007; Dozois & Dobson, 2001a, 2001b, 2003; Dozois et al., 2012; Dozois & Frewen, 2006; Lumley, Dozois, Hennig, & Marsh, 2012; Quilty, Dozois, Lobo, Ravindran, & Bagby, 2014).

Revised-Dyadic Adjustment Scale (R-DAS; Busby, Christensen, Crane, & Larson, 1976). The Revised Dyadic Adjustment Scale was created by Busby, Christensen, Crane, and Larson (RDAS; 1995) to improve the psychometric properties of Spanier's (1976) original and widely used Dyadic Adjustment Scale (DAS). Like the

DAS, the RDAS measures global relationship adjustment and can be used to distinguish between clinically distressed couples and non-distressed couples (Anderson et al., 2014). The RDAS consists of 14 self-report items, each asking participants to provide a response using 6-point Likert-type rating scales (with the exception of one item, which uses a 5-point scale). For example, items may ask participants to rate how often particular events (e.g., a disagreement or a calm discussion) occur in their relationship, using a scale ranging from *All the time* or *Every day* to *Never*. After reverse scoring selected items, scores are summed to acquire an overall dyadic adjustment score. Total scores range from 0–69, with lower scores on this measure reflecting higher couple distress. Research supports the psychometric properties of this measure (Alves et al., 2015; Anderson et al., 2014; Busby et al., 1995; Crane, Middleton, & Bean, 2000; Hawkins, Fawcett, Carroll, & Gilliland, 2006; Hollist et al., 2012; Parker, Tambling, & Campbell, 2013; Ward, Lundberg, Zabriskie, & Berrett, 2009). Despite having significantly fewer items, the RDAS correlates highly ($r = .97$) with the DAS and demonstrates equivalent or superior performance on a number of validity and reliability estimates (see Busby et al., 1995). The RDAS can be reliably used in both married and non-married couples (Parker et al., 2013). Cronbach's alpha in this sample was .77.

Investment Model Scale: Satisfaction & Commitment Facets (Rusbult, Martz, & Agnew, 1998). The Investment Model Scale is a widely used instrument that includes subscales measuring relationship satisfaction and commitment. The satisfaction and commitment scales ask participants to indicate their level of agreement with a number of statements on an 8-point scale with endpoints labeled 1 (*don't agree at all*) and 8 (*completely agree*). The satisfaction facet includes items such as “My partner

fulfills my needs for intimacy,” and “My relationship is close to ideal”, whereas items from the commitment facet include “I am committed to maintaining my relationship with my partner” and “I want our relationship to last forever.” The original satisfaction scale (consisting of 10 items) and the 15-item version of the commitment scale (Rusbult, Kumashiro, Kubacka, & Finkel, 2009) were used in this study. Research demonstrates the reliability, and convergent, discriminant, and predictive validity of this measure (Rusbult, Martz, & Agnew, 1998). Internal consistency in the current sample was .95 for the commitment scale, and .91 for the satisfaction scale.

Relationship Attribution Measure (RAM; Fincham & Bradbury, 1992). The RAM was used to examine the degree to which participants endorse a number of distress-maintaining attributions about their partners’ undesirable behaviours. In this measure, participants are presented with four hypothetical negative partner behaviours (e.g., “Your partner criticizes something you say”). For each of the four behaviours, participants are instructed to rate their agreement with 6 statements indicating the degree to which they endorse causal and responsibility attributions for a partner’s negative behaviours. The causal attributions subscale measures the belief that the causal locus of the behaviour is within the partner, and that this cause is stable and global. The responsibility attributions subscale reflects the degree to which participants believe their partner engaged in the behaviour intentionally, and whether the partner deserves to be blamed for the behaviour. Research supports the RAM’s test-retest reliability, internal consistency, and validity (Fincham & Bradbury, 1992). Cronbach’s alpha in current sample was .78 for the causal attributions scale, and .86 for the responsibility attributions scale.

Procedure

Participants were run in groups of up to six individuals and completed all measures on individual computer workstations in the Mood Lab. All participants first completed the Demographic Questionnaire. The BDI-II, PDST (self and partner versions), R-DAS, IMS, and RAM were then presented in a randomized order to participants. Upon completion of the study, participants were debriefed, thanked for their participation, and provided with credit for their introductory psychology class. Participants were given a list of psychological resources and were encouraged to access them if needed.

Results

Preliminary Analyses

Descriptive statistics for the sample demographics and study variables of interest are found in Tables 1 and 2, respectively. Preliminary analyses were conducted to examine any patterns of missing data. In accordance with the guidelines outlined by Tabachnick and Fidell (2013), because less than 5% of data points were missing and the distribution of missing data was random, mean imputation was used to estimate the missing data points. It is important to note that because the PDST uses an idiographic formula to calculate the four interstimulus distance (ISD) scores for each participant, missing data points on this measure reflect a lack of endorsement of a given domain; therefore listwise deletions were used to remove those participants from analyses as needed. Correlations between all study variables of interest can be found in Table 3.

Table 2
Descriptive Statistics for Variables of Interest

Variable	<i>n</i>	<i>M (SD)</i>	Min	Max
BDI-II	291	12.31 (9.68)	0.00	51.00
R-DAS	291	49.64 (7.50)	25.00	65.00
IMS Commitment	290	5.54 (1.63)	0.53	8.00
IMS Satisfaction	291	50.40 (9.45)	13.33	60.00
Interstimulus Distances				
Positive Self ISD	291	.08 (.22)	-.42	1.30
Negative Self ISD	279	.75 (.42)	-.06	2.36
Positive Partner ISD	291	.03 (.20)	-.68	.89
Negative Partner ISD	273	.94 (.50)	-.51	2.44
RAM				
Causal Attributions	290	3.49 (.74)	1.00	5.58
Responsibility Attributions	290	2.80 (.87)	1.00	6.00

Note. BDI-II = Beck Depression Inventory – II, R-DAS = Revised Dyadic Adjustment Scale, IMS = Investment Model Scale, ISD = Interstimulus Distance, as measured by the PDST, RAM = Relationship Attribution Measure.

Table 3
Correlations Among the Variables of Interest

	1	2	3	4	5	6	7	8	9	10
1. BDI-II		-.37**	-.10	-.39**	-.31**	.42**	-.18**	.29**	.20**	.16**
2. Dyadic Adjustment			.37**	.58**	.21**	-.27**	.38**	-.34**	.33**	-.35**
3. Commitment				.51**	-.02	-.06	.09	-.17**	-.05	-.08
4. Satisfaction					.17**	-.24**	.30**	-.43**	-.35**	-.35**
5. Negative Self ISD						-.20**	.46**	-.22**	-.10	-.15*
6. Positive Self ISD							-.18**	.44**	.09	.06
7. Negative Partner ISD								-.27**	-.31**	-.34**
8. Positive Partner ISD									.22**	.19**
9. Causal Attributions										.56**
10. Responsibility Attributions										

Note. BDI-II = Beck Depression Inventory – II, R-DAS = Revised Dyadic Adjustment Scale, IMS = Investment Model Scale, ISD = Interstimulus Distance, as measured by the PDST, RAM = Relationship Attribution Measure. * $p < .05$. ** $p < .01$

Data Analyses

Schema structures and depressive symptoms. The first research question of interest was whether or not depressive symptoms were associated with a partner-schema structure similar to that of the self-schema structure typically observed in individuals with depression. As such, bivariate correlations were computed to examine the associations between partner-schema organization, self-schema organization, and BDI-II scores. Pearson correlations for these variables are presented in Table 3. Positive self ISDs were positively and significantly correlated with positive partner ISDs. Similarly, negative self ISDs were positively and significantly correlated with negative partner ISDs. In line with previous studies, higher depressive symptoms were associated with greater interconnectedness of negative self-schema content, and more loosely connected positive self content. As predicted, similar associations were found between depressive symptoms and partner-schema organization, such that elevated scores on the BDI-II were correlated with greater interconnectedness of negative partner-schema content, and more loosely connected positive partner content.

Schema structures and relationship quality. The second research question was whether partner-schema structure was associated with dyadic adjustment, relationship satisfaction, and commitment, and whether this association held while controlling for self-schema structure. Three separate hierarchical regression analyses were conducted for the three relationship quality criterion variables. As BDI-II scores correlated significantly with the criterion variables of interest (except commitment), this variable was entered as a covariate in the first step of all analyses. To facilitate ease of interpretation and to

maintain parsimony, both positive and negative domains of self-schema structures were entered into the same step of the regression. Similarly, positive and negative domains of partner-schema structures were entered simultaneously. Therefore, in the second step, negative and positive self-schema ISDs scores were entered, and in the final step, negative and positive partner-schema ISDs scores were entered. This procedure was repeated for each of the outcome variables of interest. As such, the regression analyses outlined below followed the aforementioned steps for each assessed criterion variable.

Dyadic adjustment scores regressed onto self- and partner-schemas. The first criterion variable of interest was dyadic adjustment. Pearson correlations are presented in Table 3, and the regression coefficients and their associated tests of significance are presented in Table 4. In the first step of the regression, depression accounted for a significant proportion of variance in dyadic adjustment, $R^2 = .12$, $F(1, 264) = 36.91$, $p < .001$, indicating that individuals who reported higher depression scores reported lower dyadic adjustment. In the second step, self schema organization accounted for significant additional variance in dyadic adjustment after accounting for depressive symptoms, R^2 change = .02, $F(3, 262) = 14.92$, $p < .001$. This finding indicates that greater positive self ISDs (but not less negative self-ISDs)¹ are associated with poorer relationship adjustment. In the third step, partner schema organization significantly added to the prediction of dyadic adjustment after controlling for the effects of depression and self-schema, R^2 change = .12, $F(5, 260) = 19.04$, $p < .001$. Specifically, both negative ISD and positive ISDs are independently associated with dyadic adjustment, such that a partner-

¹ Recall that ISDs refer to the interstimulus distances between stimulus words within the schema structure; therefore higher ISD values reflect lower consolidation or less organization of schema content.

Table 4
Hierarchical Multiple Regression Predicting Dyadic Adjustment from Schema Organization

Step and Variable Entered	<i>F</i>	<i>R</i>	Adj <i>R</i> ²	ΔF	<i>df</i>	<i>B</i>	<i>SE</i> of <i>B</i>	β	<i>t</i>
Step 1: BDI-II	36.91***	.35	.12	36.91***	1, 264	-.27	0.04	-.35	-6.08***
Step 2: Negative Self ISD Positive Self ISD	14.92***	.38	.14	3.56*	2, 262	1.72 -4.36	1.13 2.13	0.09 -.13	1.54 -2.05*
Step 3: Negative Partner ISD Positive Partner ISD	19.04***	.52	.25	21.68***	2, 260	5.17 -6.27	0.92 2.35	0.34 -.16	5.60*** -2.67***

Note. BDI-II = Beck Depression Inventory–II, ISD = Interstimulus Distance, as measured by the PDST. All values are rounded to two decimal digits.

* $p < .05$. ** $p < .01$, *** $p < .001$.

schema structure characterised by both highly organized negative information and loosely dispersed positive information is associated with poorer dyadic adjustment.

Relationship satisfaction scores regressed onto self- and partner-schemas. The next criterion analyzed was relationship satisfaction. Pearson correlations are presented in Table 3, and the regression coefficients and their associated tests of significance are presented in Table 5. For the first step of the regression, depression accounted for a significant proportion of variance in satisfaction, $R^2 = .15$, $F(1, 264) = 45.96$, $p < .001$, indicating that individuals who reported higher depression scores reported lower relationship satisfaction. For the second step, self schema organization accounted for a significant portion of the variance in satisfaction after depression, R^2 change = .01, $F(3, 262) = 16.06$, $p < .001$. This indicates that self-schema structures characterized by greater positive self ISDs and less negative self ISDs are associated with lower relationship satisfaction (although neither of positive nor negative structures separately were independently predictive of satisfaction on their own). For the third step, partner schema organization significantly added to the prediction of satisfaction after controlling for the effects of depression and self-schema, R^2 change = .15, $F(5, 260) = 23.28$, $p < .001$. Specifically, both negative ISDs and positive ISDs are independently associated with satisfaction, such that a partner-schema structure characterised by both highly organized negative information and loosely dispersed positive information is associated with reduced relationship satisfaction.

Table 5
Hierarchical Multiple Regression Predicting Relationship Satisfaction from Schema Organization

Step and Variable Entered	<i>F</i>	<i>R</i>	Adj <i>R</i> ²	ΔF	<i>df</i>	<i>B</i>	<i>SE</i> of <i>B</i>	β	<i>t</i>
Step 1: BDI-II	45.96***	.39	.15	45.96***	1, 264	-.38	0.06	-.39	-6.78***
Step 2: Negative Self ISD Positive Self ISD	16.06***	.39	.15	1.09*	2, 262	.41 -3.89	1.45 2.73	0.02 -.09	.28 -1.42
Step 3: Negative Partner ISD Positive Partner ISD	23.28***	.56	.30	28.97***	2, 260	4.72 -17.13	1.16 2.95	0.24 -.34	4.08*** -5.81***

Note. BDI-II = Beck Depression Inventory–II, ISD = Interstimulus Distance, as measured by the PDST. All values are rounded to two decimal digits.

* $p < .05$. ** $p < .01$, *** $p < .001$.

Relationship commitment scores regressed onto self- and partner-schemas.

Pearson correlations for the criterion variable of relationship commitment are presented in Table 3, and the regression coefficients and their associated tests of significance are presented in Table 6. As commitment was significantly correlated with relationship duration, this was entered into the first step of the regression along with BDI-II. For the first step, depression and relationship duration accounted for a significant proportion of variance in commitment, $R^2 = .02$, $F(2, 262) = 3.08$, $p = .047$. For the second step, self schema organization did not account for a significant proportion of the variance in commitment after controlling for depression, R^2 change = .01, $F(4, 260) = 1.92$, $p = .108$. For the third step, partner schema organization significantly added to the prediction of commitment after controlling for the effects of depression, relationship duration, and self-schema, R^2 change = .06, $F(6, 258) = 4.03$, $p = .001$. Specifically, both negative ISDs and positive ISDs are independently associated with commitment; such that a partner-schema structure characterised by both highly organized negative information and loosely dispersed positive information is associated with reduced relationship satisfaction.

Schema structure and relationship attributions. The final research question was whether partner-schema structure was associated with causal and responsibility attributions, and whether this association held while controlling for self-schema structure. Hierarchical regression analyses were conducted to evaluate whether partner-schema organization was associated with distress-maintaining attributions above and beyond the effects of self-schema structure. Two separate hierarchical regression analyses were conducted to examine the two separate criterion variables. The same 3-step analytic strategy as described above was also implemented here.

Table 6
Hierarchical Multiple Regression Predicting Relationship Commitment from Schema Organization

Step and Variable Entered	<i>F</i>	<i>R</i>	Adj <i>R</i> ²	ΔF	<i>df</i>	<i>B</i>	<i>SE of B</i>	β	<i>t</i>
Step 1:	3.08*	.15	.02	3.08*	2, 262				
BDI-II						-.02	0.01	-.11	-1.83
Rel Months						.01	0.01	.11	1.78
Step 2:	1.92	.17	.01	.75	2, 260				
Negative Self ISD						-.27	.27	-.07	-1.02
Positive Self ISD						-.39	.50	-.05	-.77
Step 3:	4.03**	.29	.06	8.05***	2, 258				
Negative Partner ISD						.50	.23	.15	2.14*
Positive Partner ISD						-1.78	.58	-.21	-3.07***

Note. BDI-II = Beck Depression Inventory–II, Rel Months = Relationship Months (total number of months in current relationship), ISD = Interstimulus Distance, as measured by the PDST. All values are rounded to two decimal digits.

* $p < .05$. ** $p < .01$, *** $p < .001$.

Causal attribution scores regressed onto self- and partner-schemas. The first criterion variable of interest was the causal attribution domain. Pearson correlations are presented in Table 3, and the regression coefficients and their associated tests of significance are presented in Table 7. For the first step of the regression, depression accounted for a significant portion of variance in causal attributions, $R^2 = .04$, $F(1, 263) = 10.75$, $p = .001$, indicating that individuals who reported higher depression scores also endorsed more causal attributions about a partner's negative behaviour. For the second step, self schema organization accounted for a significant portion of the variance in attributions after controlling for depression, R^2 change = .01, $F(3, 261) = 3.99$, $p = .008$. That is, self-schema structures characterized by greater positive self ISDs and less negative self ISDs are associated with the tendency to make causal attributions (although neither of positive nor negative structures separately were independently predictive of these attributions on their own). For the third step, partner schema organization significantly added to the prediction of attributions after controlling for the effects of depression and self-schema, R^2 change = .07, $F(5, 259) = 6.65$, $p < .001$. In this instance, only the organization of negative partner information (not the organization of positive information) was independently associated with causal attributions, suggesting that the association with partner schema organization was driven by negative partner ISDs.

Responsibility attribution scores regressed onto self- and partner-schemas. The final criterion variable of interest was the responsibility attribution domain. The regression coefficients and their associated tests of significance are presented in Table 8 (see Table 3 for Pearson correlations). In the first step of the regression, depression accounted for a significant portion of variance in responsibility attributions, $R^2 = .02$, $F(1,$

Table 7
Hierarchical Multiple Regression Predicting Causal Attributions from Schema Organization

Step and Variable Entered	<i>F</i>	<i>R</i>	Adj <i>R</i> ²	ΔF	<i>df</i>	<i>B</i>	<i>SE of B</i>	β	<i>t</i>
Step 1: BDI-II	10.75***	.20	.04	10.75**	1, 263	.01	.00	.20	3.28**
Step 2: Negative Self ISD Positive Self ISD	3.99***	.21	.03	.64	2, 261	-.13 -.07	.12 .22	-.07 -.02	-1.10 -.34
Step 3: Negative Partner ISD Positive Partner ISD	6.65***	.34	.10	10.20***	2, 259	-.41 .28	.10 .25	-.28 .07	-4.21*** 1.10

Note. BDI-II = Beck Depression Inventory–II, ISD = Interstimulus Distance, as measured by the PDST. All values are rounded to two decimal digits.

* $p < .05$. ** $p < .01$, *** $p < .001$.

Table 8

Hierarchical Multiple Regression Predicting Responsibility Attributions from Schema Organization

Step and Variable Entered	<i>F</i>	<i>R</i>	Adj <i>R</i> ²	ΔF	<i>df</i>	<i>B</i>	<i>SE of B</i>	β	<i>t</i>
Step 1: BDI-II	5.26*	.14	.02	5.26**	1, 263	.01	.01	.14	2.29*
Step 2: Negative Self ISD Positive Self ISD	2.30	.16	.02	.82	2, 261	-.17 -.11	.14 .26	-.08 -.03	-1.24 -.41
Step 3: Negative Partner ISD Positive Partner ISD	8.34***	.37	.12	16.97***	2, 259	-.63 .44	.12 .30	-.36 .09	-5.40*** 1.48

Note. BDI-II = Beck Depression Inventory–II, ISD = Interstimulus Distance, as measured by the PDST. All values are rounded to two decimal digits.

* $p < .05$. ** $p < .01$, *** $p < .001$.

263) = 3.84, $p = .023$, indicating that individuals who reported higher depression scores also endorsed making more responsibility attributions for a partner's negative behaviour. For the second step, self schema organization did not account for a significant portion of the variance in responsibility attributions after depression, R^2 change = .01, $F(3, 261) = 2.30$, $p = .078$. For the third step, partner schema organization significantly added to the prediction of responsibility attributions after controlling for the effects of depression and self-schema, R^2 change = .11, $F(5, 259) = 8.34$, $p < .001$. Specifically, only the organization of negative partner information (not the organization of positive information) was independently associated with responsibility attributions, suggesting that its association with partner schema organization was driven by negative partner schema structure.

Discussion

The current study examined whether depressive symptoms were associated with an organized partner-schema structure, and whether that schema structure was associated with relationship quality and attributions about a partner's negative behaviours. Depressive symptoms were predicted to relate to self- and partner-schemas characterized by highly organized networks of negative information, and dispersed positive information. Further, consistent with cognitive theories and spreading activation models, partner-schemas were expected to be associated with self-reported relationship quality, as well as attributions about a partner's behaviour. Another objective of this study was to examine whether the associations between partner-schemas and the aforementioned relationship variables held while controlling for the effects of self-schemas. Overall, the findings of this study supported the hypotheses.

The first hypothesized finding was that depressive symptoms would be associated with a highly organized partner-schema structure similar to the depressive self-schema structure repeatedly observed in the literature. In particular, depression has been linked to a self-schema structure characterized by tightly interconnected negative information about the self, and loosely interconnected positive self-referent information (Dozois & Dobson, 2001a, 2001b; Dozois et al., 2012; Dozois & Frewen, 2006; Lumley et al., 2012; Quilty et al., 2014). As predicted, the current findings suggest that a similar structure emerged for the partner-schema. In particular, depressive symptoms were significantly associated with a partner-schema structure characterized by highly interconnected negative information about a partner, and loosely dispersed positive partner information. This is a novel finding that has not yet been reported elsewhere in the literature, but is in line with predictions made based on two major theoretical approaches. First, drawing on Beck and colleagues' (1979) cognitive theory of depression, individuals with the disorder have negative views of the self, the world, and the future. As such, it was expected that this tendency to view one's personal world in a pervasively negative manner would extend to a depressed individual's view of his or her romantic partner. The results of this study provide preliminary support for the notion that depressive self-schema structure is mirrored in romantic partners. Second, a long history of theory and research in psychology has suggested that representations of self are delicately intertwined with, and mutually influenced by, representations of close others (e.g., Baldwin, 1992; 1995; Bowlby, 1973; 1980; Aron et al., 1992; Aron et al., 1991). Indeed, a shared core feature that cuts across classic and contemporary models of romantic relationships is that the integration of self and romantic partner represents a defining feature of interpersonal

“closeness” (see Finkel et al., 2017 for review). That is, the self and other begin to share characteristics, the degree of self-other distinction begins to lessen, and self and other become increasingly integrated into one overlapping cognitive category (Aron et al., 1991; Aron et al., 2004).

Research supports the notion of the cognitive integration of self and other, and suggests that not only does structural similarity (e.g., Brown et al., 2009) and processing efficiency (e.g., Kuiper & Rogers, 1979) increase with closeness, but representations of self and other actually overlap to the extent that individuals may be unsure of where they end and their partner begins (Mashek et al., 2003; Slotter & Gardner, 2009). This cognitive merging of self and other is purported to influence how information about the relationship is processed (Aron et al., 1991) and occurs through a variety of processes – for example, through shared experiences, self-disclosures, and desire for merger (Finkel et al., 2017). Thus, the question of whether self and romantic partner can actually be disentangled is an intriguing one. The finding that individuals actually experience “confusion” and make errors in their attempts to differentiate between self versus partner in laboratory paradigms (e.g., Aron et al., 1991; Mashek et al., 2003) suggests that separating self and partner representations conceptually and empirically may be a difficult task. There is no doubt that self and other are inextricably linked; however, it is possible that, despite their significant overlap, there are some aspects of self and partner that remain distinct.

In the current study, the zero order correlations demonstrated that self-schema organization was significantly but only moderately correlated with partner-schema organization. That is, self- and partner-schema interconnectedness for positive and

negative information were both significantly positively correlated. This finding is an especially meaningful one, as it suggests that while self- and partner-schemas are related, they are not entirely overlapping and represent distinct constructs. Thus, while multiple theorists have emphasized the importance of the interconnectedness of self and other schemas (e.g., Baldwin, 1992; 1995; Aron et al., 1992; Aron et al., 1991), these findings support the idea that they remain as distinct schematic components and that there are likely some aspects of self and partner that remain cognitively separate. As such, this moderate correlation lends further credence to the idea that the subsequent analyses examining whether partner schema is predictive of relationship variables beyond self-schemas is a meaningful and stringent analysis.

The second hypothesis was that partner-schema structure would be associated with relationship quality (as operationalized by dyadic adjustment, relationship satisfaction, and commitment), and that this association would hold above and beyond the effects of self-schema structure. Consistent with cognitive theories and spreading activation models (e.g., Bower, 1981), previous research using different measures of partner-schemas have shown that these underlying schema structures are predictive of self-reported (Showers & Kevlyn, 1999) and observed (Campbell, Butzer, & Wong, 2008) relationship quality, affect and attitudes towards a partner (e.g., liking and loving; Reifman & Crohan, 1993; Showers & Kevlyn, 1999), and relationship satisfaction (Whisman & Delinsky, 2002; Chatav & Whisman, 2009). In line with this literature, the current study supported the hypothesis and revealed that partner-schema structures were associated with dyadic adjustment, satisfaction, and commitment. Specifically, partner-schemas characterized by highly organized negative information and loosely

interconnected positive information were linked with lower levels of reported dyadic adjustment, satisfaction, and commitment. Moreover, these associations were found while controlling for the effects of self-schema structure. Thus, these findings offer a replication of the extant literature using alternative measures of relationship quality and a novel measure of schema structure that has been shown to be particularly robust and stable in the context of depression (Dozois, 2007). According to spreading activation models, the more closely linked negative schema content is, the more readily accessible negative cognitions and affective states are. Therefore, when an underlying negative schema structure for one's romantic partner is activated, more closely interconnected negative nodes should facilitate more readily available negative cognitions and affective responses towards the partner. In other words, the more tightly interconnected schema nodes are, the more efficiently the activation spreads through the network of negative traits and results in a highly negative stream of conscious thoughts and affect related to one's partner. In line with these spreading activation models, more tightly interconnected negative and loosely connected positive information about a partner was associated with reductions in self-reported satisfaction, commitment, dyadic adjustment. The current findings also showed that partner schema structure was associated with these variables above and beyond the effects of self-schema structures.

The final hypothesis was that partner-schema structure would be associated with more negative surface level cognitions about a partner. In particular, it was predicted that partner schema structures would be associated with a greater tendency to make distress-maintaining attributions about a partner's negative behaviours, and that this association would hold above and beyond the effects of self-schema structure. Two domains of

relationship attributions commonly used in the literature were examined in this study: causal attributions and responsibility attributions. In line with cognitive theory as well as previous findings (Chatav & Whisman, 2009; Showers & Kevlyn, 1999), partner-schema structures were associated with the tendency to make causal and responsibility attributions for a partner's negative behaviours. In particular, the results from the regression analyses suggest that the organization of negative information about a partner (rather than the organization of positive information) may be driving the association between partner schemas and attributions. That is, a tightly interconnected network of negative information about a partner appears to contribute more to dysfunctional attributions than a loosely dispersed network of positive information. Moreover, a novel finding was that partner-schemas predicted attributions above and beyond self-schemas.

One novel contribution of the current study is the use of the PDST to operationalize partner-schema structure. While the majority of studies examining partner-schemas have used information processing schema measures, the PDST is unique in its ability to capture the *organization* of information about a romantic partner. As mentioned above, this may be particularly important for understanding the role of partner schemas in depression, as research suggests that while biases in surface level cognitions and information processing tend to dissipate as depressive symptoms remit, underlying cognitive structures (as measured by the PDST) tend to remain stable despite the amelioration of symptoms (e.g., Dozois, 2007). In addition, research suggests that interpersonal difficulties may represent stable vulnerabilities in individuals with depression (Petty, Sachs-Ericsson, & Joiner, 2004). Therefore, identifying the stable, underlying cognitive risk factors that may contribute to these chronic difficulties may be

particularly important for understanding the aetiology of interpersonal dysfunction and informing interventions.

An additional contribution of the current study is that it offers a preliminary investigation of the relative importance of self- versus partner-schemas in predicting a number of relationship variables. Specifically, the findings suggest that partner schemas may be particularly important in predicting relationship quality and attributions about one's partner, above and beyond the effects of self-schemas. Interestingly, self-schema structures were not linked as strongly to the relationship criterion variables as could be expected. For instance, research shows that an individual's own negative self-views have been associated with underestimations of relationship quality and reduced relationship well-being (Murray, Holmes, & Griffin, 2000; DeHart et al., 2004), suggesting that self-schema content may influence relationship variables. Although there is a difference between structure and content, these findings may provide indirect support for the idea that a negative self-schema structure would also be associated with dysfunctional attributions about a partner's negative behaviour. It is worth noting that the relationship attribution measure used in the current study asked participants to rate possible reasons for a partner's negative behaviour (e.g., being critical, inattentive) from a variety of response options, including whether this behaviour was a result of something within their partner or something within themselves. As such, a negative underlying self-schema structure could reasonably be associated with scores on this measure. While this lack of an association between self-schema structure and attributions about a partner's behaviour is surprising, it may have important implications given that cognitive theory has heavily emphasized the role of the self-schema in understanding the difficulties experienced by

individuals with depression. These findings provide preliminary support for the notion that partner-schema structures may be stronger predictors of interpersonal difficulties in depression than the self-schema. For example, while depression has been associated with the tendency to make distress-maintaining attributions about a partner's negative behaviours (e.g., Heene, Buysse, & Van Oost, 2005; 2007), the literature has yet to elucidate the underlying cognitive risk factors contributing to this tendency. While traditional research informed by cognitive models of depression would have likely emphasized the role of self-schemas in predicting dysfunctional relationship cognitions, the findings of the current study suggest that a more fruitful line of investigation would be an examination of partner-schemas. Moreover, by controlling for the effects of self-schema structures, these results provide an especially conservative test and thereby increase our confidence in the uniqueness of the contribution of partner schemas to relationship variables.

Overall, the findings of the current study were in line with the hypotheses and can be understood in the context of cognitive models of depression. According to Beck and colleagues' (1979) cognitive theory of depression, individuals with depression have negative views of the self, the world, and the future. In particular, cognitive models posit that highly organized underlying schema structures contribute to negatively biased information processing and surface level cognitions, such as attributions about the self and others. Moreover, the more closely linked negative schema content is, the more readily accessible negative cognitions (and associated affective states) are (e.g., Bower, 1981). While previous research has focused on the role of the self-schema, the current study is the first to suggest that this tendency to view one's personal world in a

pervasively negative manner would extend to a depressed individual's view of his or her romantic partner, and the highly organized self schema structure often observed in individuals with depression is projected onto these individuals' romantic partners. In other words, depression is associated with a partner-schema structure similar to that of the self-schema structure. The current study also suggests that, in line with spreading activation models of cognition, partner-schema organization may have important implications for relationship quality and cognitions about one's current romantic partner. The findings of this study support the idea that, particularly when it comes to understanding cognitive vulnerabilities to interpersonal difficulties in the disorder, the organization of partner-schema structures may be an important piece of the puzzle that has yet to be integrated.

While this study puts forth a novel contribution and begins to bridge an important gap in the literature, certain limitations should be noted. This study was conducted with a sample of university undergraduate students, thereby limiting generalizability to individuals of more diverse socioeconomic status, relationship types and lengths. Nonetheless, the presence of highly organized partner-schemas in relatively new dating relationships suggests that partner-schemas develop and begin to exert an influence on romantic relationships in their early stages. In addition, while the current study sought to examine the link between partner schemas and depression, it is important to note that a clinical sample was not used. This may not necessarily represent a limitation, however, as there is no evidence to suggest that schema structure would not be associated with depressive symptoms in a continuous fashion (Haaga & Solomon, 1993). Finally, given that the data were collected cross-sectionally and are correlational, any conclusions about

causality or the direction of effects cannot be made based on the current data. As such, longitudinal and experimental research is needed before such conclusions can be firmly made. Nonetheless, it is important to note that the cross-sectional methods employed may have been well-suited given the exploratory nature of these research questions and relatively novel findings. That is, longitudinal study designs and other methodology requiring more resources are better suited for research questions based upon more established bodies of literature and empirical evidence. Given that there is now support for the associations between these variables, the findings of this study provide more grounds upon which to conduct future studies that are more methodologically rigorous.

Despite its limitations, the current study has several strengths. For instance, the study was conducted with a relatively large sample size and used psychometrically sound measures to replicate and expand on extant research to add novel contributions to the literature. Moreover, the findings of this study appear to be promising and thereby offer potential for the generation of new avenues for research. To expand upon the current findings, longitudinal designs could be used to more rigorously examine the ways in which self-schemas and partner-schemas influence relationship processes and depressive symptoms across time and *in vivo*. For instance, daily diary methodology could be used to examine whether a highly organized negative partner-schema longitudinally predicts the self-reported daily frequency and occurrence of negative relationship interactions with partners. Specifically, clinical samples of individuals with depression could be recruited to examine whether partner schema structures predict self reports of maladaptive cognitions about one's partner (e.g., attributions), changes in affect (e.g.,

increases in depressed mood), and general indicators of relationship well-being (satisfaction, commitment, trust, and overall adjustment) across time.

An interesting direction for future research would be to examine possible pathways through which partner-schema structures and depressive symptoms are linked. For example, as cognitive theory would suggest, it is possible that partner schemas may contribute to depressive symptoms through their effects on attributions. Given that the tendency to attribute negative life experiences to one's own stable and global internal qualities, and to attribute positive events to external, specific, and unstable causes are found to perpetuate depressive symptoms over time (e.g., Alloy et al., 2006; Sweeney, Anderson, & Bailey, 1986), similar attributional styles regarding a partner's behaviour may also contribute to the maintenance of depressive symptoms. As such, partner schemas may contribute to depressive symptoms through their effects on relationship variables, such as relationship attributions. Future longitudinal studies could test this and other similar mediational models to gain a greater understanding of the interplay between cognitive and interpersonal vulnerabilities in the disorder.

In addition to self reported cognitions and subjective experiences of relationship difficulties, research could also examine whether a highly organized negative partner-schema predicts negative behavioural interactions between partners. For instance, interpersonal theories of depression posit that individuals with the disorder behave in ways that elicit rejection from others and further contribute to depressive symptoms (e.g., Coyne, 1976). In particular, research has highlighted the tendency for individuals with depression to engage in behaviours such as avoidance and excessive reassurance seeking (see Hames et al., 2013 for a review). While the cognitive vulnerabilities that contribute

to these maladaptive behaviours in interpersonal relationships are not well known, it is possible that self and partner-schema structures represent important risk factors. As such, future research could examine whether these cognitive structures predict dysfunctional behaviours and depressive symptoms over time. This could be done via subjective reports (e.g., daily diary reports of reassurance seeking) as well as objective, observable occurrences of behaviours rated by independent coders in the lab. Future studies could begin to explore whether partner-schema structures not only influence perceptions in relationships, but if they also influence behaviours (e.g., ERS, avoidance, displays of affection, avoidance, and maladaptive communication styles) that can feed into depression.

As such, the findings of this study have the potential to generate a new line of research examining potential underlying cognitive vulnerabilities to interpersonal difficulties in depression. Indeed, researchers (e.g., Dobson et al., 2014; Gadassi & Rafaeli, 2015) have acknowledged the need for more research in this area. The cognitive model of depression posits that the negative thoughts, feelings, and behaviours an individual experiences in interpersonal interactions stem from highly organized, negative underlying schema structures. The current study attempts to better understand the cognitive vulnerabilities underlying poor relationship adjustment by examining the role of partner schemas in deteriorating relationship quality and distress-maintaining cognitions. Overall, the findings were in line with predictions and suggest that partner-schema structure may be an important component when it comes to understanding cognitive risk factors contributing to interpersonal difficulties in depression. Given that problems in interpersonal functioning are associated with poorer treatment response (e.g.,

Quilty et al., 2013) and greater chance of relapse (e.g., Whisman, 2001), it is critical to understand factors that may contribute to these difficulties in individuals with depression. Focusing on the self-schema at the expense of understanding relational schemas may be problematic when it comes to understanding depression and its associated interpersonal difficulties. Both theory and clinical practice could benefit from a more thorough understanding of the interplay between cognitive and interpersonal vulnerabilities in this disabling disorder.

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Appendix A

Letter of Information

Project Title: Romantic Relationships and Mood

Principal Investigator: Dr. David Dozois, PhD, Western University

Co-Investigator: Jesse Lee Wilde, MSc candidate, Western University

1. Invitation to Participate

This study explores the link between romantic relationships and mood. You have been invited to participate in one in-lab session lasting approximately 2 hours. You will receive 2 PSY1000 experiment credits (or if you are not from PSY1000, you will receive the number as stated in your course outline).

2. Purpose of the Letter

The purpose of this letter is to provide you with information required for you to make an informed decision regarding participation in this research.

3. Purpose of this Study

The purpose of this study is to examine how people organize information and beliefs about oneself and one's romantic partner. In addition, this study aims to examine how these beliefs are linked to mood and relationship functioning. This will help us to better understand the link between thoughts about one's partner, romantic relationship, and mood.

4. Inclusion Criteria

Individuals who are students, staff, or faculty members at Western University and are currently involved in a romantic relationship of at least 3 months are eligible to participate in this study.

5. Exclusion Criteria

Individuals who are not currently in a relationship of at least a 3 month duration are not eligible to participate in this study. Additionally, individuals who have previously completed the Mood Lab study entitled "The Effects of Thinking on Mood and Mood on Thinking" are not eligible to participate in this study.

6. Study Procedures

This study will consist of a series of online tasks and questionnaires, lasting approximately 2 hours. You will be asked to answer a series of questions about yourself, your current partner, and your interpersonal relationships more generally. For example, you will be asked to rate yourself and your current partner on a number of characteristics, and you will be asked questions about your thoughts, feelings, and behaviours in close relationships; including romantic and family relationships. You will

also be asked to answer questions about any of your own symptoms of depression and other mental health concerns. After the session, you will be debriefed by the researcher. You may withdraw from the study at any time should you decide you would no longer like to participate, without any loss in compensation of course credit. Similarly, refusal to answer questions will not result in loss of compensation. That is, after

beginning the study procedures, you will still receive 2.0 (or as otherwise stated) course credits should you choose not to answer certain questions and/or you choose to terminate your participation early in this study. If you complete the study in less than 100 minutes, you may be asked to complete one additional questionnaire designed to inform future research study procedures in the lab. This additional questionnaire takes approximately 10 minutes to complete; you may choose not to do this additional questionnaire and you will still receive your promised number of course credits.

7. Possible Risks and Harms

You may experience some mild discomfort when completing the questionnaires and/or tasks, but this should be transient. Further, you will be provided with a debriefing form at the end of your participation that provides resources on campus and in the community that you can use if you are distressed.

8. Possible Benefits

This study gives you the opportunity to learn more about how psychological research is conducted. Additionally, information gathered may provide benefits to society as a whole, including learning more about the ways in which mood and romantic relationships are linked. You may also gain greater insight into your own personal beliefs about yourself and your romantic relationship.

9. Compensation

You will be compensated with 1 research credit per hour toward PSYCH1000 for participating in this study. If you are enrolled in a course other than PSYCH1000, your compensation will be based on your course outline. If you have any questions about the time or compensation, please feel free to contact the investigators before you consider signing the consent.

10. Voluntary Participation

Participation in this study is voluntary. You may refuse to participate, refuse to answer any questions or withdraw from the study at any time with no effect on your academic status or relationship to the university. If you refuse to participate partway through the study, any data collected up to that point will not be used. You do not waive any legal right by consenting to this study.

11. Confidentiality

All data collected will remain confidential and accessible only to the investigators of this study. Data is stored by Western University Psychology Department's secure server and all forms are stored in locked filing cabinets. Representatives of the University of Western Ontario's Non-Medical Research Ethics Board may require access to your

study-related records to monitor the conduct of the research. If the results are published, your name will not be used. If you choose to withdraw from this study, your data will be removed and destroyed from our database. All data will be destroyed 5 years after final publication of results.

Consent Form

Project Title: Romantic Relationships and Mood

Principal Investigator: Dr. David Dozois, PhD, Western University

Co-Investigator: Jesse Lee Wilde, MSc candidate, Western University

I have read the Letter of Information, have had the nature of the study explained to me and I agree to participate. All questions have been answered to my satisfaction.

Participant's Name (please print):

Participant's Signature:

Date:

Person Obtaining Informed Consent (please print):

Signature:

Date:

Appendix B

Demographics

Age: _____

Gender:

Male

Female

Transgender

Prefer not to disclose

Other (please specify): _____

I would describe myself as:

Heterosexual

Gay or lesbian

Bisexual

Queer

Uncertain or questioning

I choose not to answer

Other (please specify): _____

Ethnicity: (circle all those that apply)

Caucasian

Filipino

Chinese

Latin American

Korean

Black

Arab

Japanese

South Asian (e.g. East Indian, Sri Lankan, etc.)

Southeast Asian (e.g. Vietnamese, Cambodian etc.)

West Asian (e.g. Iranian, Afghan, etc.)

Aboriginal (that is, North American Indian, Métis or Inuit)

Other (please specify): _____

Don't Know

Please indicate the number of years of education you have completed to date (e.g. if you have completed grade 12 you would indicate '12 years', if you have completed one year of undergraduate studies you would indicate '13 years', if you have completed a 4 year undergraduate degree you would indicate '16 years'): _____

Have you ever received any therapy or counseling for an emotional or psychological problem? Yes/No

If yes, please describe: _____

Have you ever taken any medication for an emotional or psychological problem? Yes/No

What is your current relationship status?

- a. Single
- b. Casually dating
- c. Open relationship
- d. Exclusively dating
- e. Engaged
- f. Common-law
- g. Married

How long have you been with your current partner? _____

Appendix C

Psychological Distance Scaling Task Word List

Positive Adjectives

1. Admired
2. Approving
3. Comical
4. Communicative
5. Confiding
6. Connected
7. Delightful
8. Desirable
9. Encouraged
10. Energetic
11. Entertaining
12. Extroverted
13. Gentle
14. Gifted
15. Gracious
16. Hilarious
17. Humble
18. Joyful
19. Lively
20. Marvellous
21. Neighbourly
22. Nonjudgmental
23. Outgoing
24. Playful
25. Pleasurable
26. Selfless
27. Soft-hearted
28. Spontaneous
29. Valuable
30. Wonderful

Negative Adjectives

31. Aggressive
32. Alone
33. Annoying
34. Attention-seeker
35. Bossy
36. Combative
37. Controlling
38. Criticized
39. Demanding
40. Dependent
41. Forceful
42. Gossiper
43. Hot-tempered
44. Immature
45. Impatient
46. Insecure
47. Irritable
48. Judgmental
49. Lazy
50. Lonely
51. Lonesome
52. Needy
53. Overbearing
54. Pessimistic
55. Possessive
56. Pushy
57. Quarrelsome
58. Resentful
59. Showy
60. Unassertive

Appendix D

Debriefing

Project Title: Romantic Relationships and Mood

Thank you for your participation in this study. Research has linked depressive symptoms to a host of interpersonal difficulties, particularly within the context of intimate relationships. In particular, depressed individuals often have more negative beliefs about their romantic partners, and are less satisfied with their relationships (e.g. Beach & O’Leary, 1993). Given that relational difficulties are associated with poorer prognosis in depression (e.g. Jacobson et al., 1993), research has begun to examine cognitive vulnerabilities that may contribute to such difficulties. One cognitive vulnerability that has been repeatedly implicated in depression is the possession of a negative self-representation, or “self-schema”. Schemas are patterns of thinking that we use to organize and make sense of information in the world around us. Schemas are believed to be made up of both structure (organization of thoughts) and content (beliefs) (Dozois, 2007, 2014; Dozois & Beck, 2008; Dozois & Dobson, 2001a, 2001b). Considerable evidence suggests that highly organized negative self-schemas are implicated in depression; however, research to date has not examined the role of “partner-schemas” in depression.

The goal of this study is to examine whether depression is associated with a highly organized negative representation or schema of one’s romantic partner. In addition, this study will investigate how the structure of self- and partner-schemas are associated with romantic relationship adjustment, satisfaction, commitment, trust, and thoughts about one’s partner. This research is important, as individuals with depression often experience significant interpersonal difficulties that contribute to, and are maintained by, depressive symptoms. It is hoped that this study will provide a better understanding of vulnerability factors that influence the development and maintenance of interpersonal difficulties in depression. This information will add to the existing literature base, as well as potentially inform future clinical practice.

Thank you again for your participation,

Sincerely,
Jesse Lee Wilde, M.Sc. Candidate

Should you have any questions or concerns about this study, or would like additional information about how to access psychological support, please contact the principal investigators

Below are a variety of resources if you are interested in learning more about depression, how you can help yourself, or how you can arrange for professional help.

Self-Help References:

If you would like to look up some good self-help books on changing negative thinking, please see:

- ❖ Burns, D. D. (1980). *Feeling good*. New York: Penguin.
- ❖ Burns, D. D. (1989). *The feeling good handbook*. New York: Penguin.
- ❖ Greenberger, D., & Padesky, C. A. (2015). *Mind over mood: Change the way you feel by changing the way you think*. 2nd Edition. Guilford Press.
- ❖ Wright, J. H., & McCray, L. W. (2011). *Breaking free from depression: Pathways to wellness*. Guilford Press

Available Services

There are several ways in which individuals can access psychological or psychiatric help both on campus and within the City of London, Ontario. If you are feeling depressed or anxious or feel that you could benefit from some individual assistance, the following information may be of use to you.

The Student Development Centre at the University of Western Ontario

- Individual appointments are available for students. To make an appointment you can call **661-3031**, or you can make an appointment in person at the Reception Desk, Room 4100 of the Western Student Services Building.
- Psychological Services Staff will make every effort to respond as quickly as possible when an individual student requires an emergency appointment.
- Psychological Services Staff can help you deal with a variety of issues including those related to Traumatic Events, Sexual or Physical Assault, Date rape, Interpersonal Violence, and Gay, Lesbian, Bisexual, or Transgendered situations.
- More information about the services offered at SDC can be found on the World Wide Web at <http://www.sdc.uwo.ca/>

London Crisis Centres

Psychological Services Staff will make every effort to respond as quickly as possible when an individual requires an emergency appointment. If you are in crisis when the office is closed please call one of the numbers listed below.

- **Mental Health and Addictions Crisis Centre:** 519-433-2023
- **Sexual Assault Centre London Crisis Line:** 519-438-2272
 - Also 24 hour support line for sex trade workers: 519-438-2272
- **Women's Community House Help Line:** 519-642-3000
 - Out-of-Town calls: 1-800-265-1576
- **Zhaawanong (Atenlos) Shelter:** 519-432-0068
 - Outside of the London area code: 1-800-605-7477

- 24 hour crisis line: 519-432-0122

- **St. Joseph's Sexual Assault and Domestic Violence Centre:** 519-646-6100 ext 64224

Student Health Services Counselling Centre

- SHS is located in **Room 11, (Lower Level) University Community Centre, U.W.O.**
Main telephone line: (519) 661-3030.
- The Student Health Services Counselling Centre provides individual counselling for students. The Counselling Centre can be reached at (519) **661-3771**.
- The Counselling Centre's Hours of Operation are as follows: Monday to Friday 8:30 a.m.- 4:30 p.m. (Please note the Counselling Centre will be closed when the university is closed.)

Canadian Mental Health Association – Middlesex (including London)

- CMHA offers a variety of services to residents of London and the wider Middlesex County; for more information about programs offered visit <http://cmhamiddlesex.ca/programs/>
- The London site is located at 648 Huron Street, telephone number: 519-434-9191
- Hours of operation at the London site are 8:30am to 4:30pm, Monday to Friday

Family Services Thames Valley

- Family Services Thames Valley is located at **125 Woodward Avenue, London Ontario**. Telephone line:
- A community service that provides counselling for individuals, couples, and families.
- FSTV also offers a weekly walk-in clinic for individuals, couples, and families in the community coping with mental health, emotional, or relational concerns.
- As no appointments are necessary, counselling sessions at the walk-in clinic are offered on a first-come, first-served basis.
- Walk-in clinic sessions will be available on Tuesdays from 1pm to 6:30pm.
- Financial limitations will not be a barrier to accessing resources, as a sliding scale may be used in the event that fees are applicable for services.

Emergencies After Hours

- If you are in distress during an after-hours time, please go to the **nearest hospital emergency room**.
- **On Campus:** University Hospital: 519-663-3197, 339 Windermere Rd.
- **South London:** Victoria Hospital: 519-685-8141, 800 Commissioners Rd. East
- **North London:** St. Joseph's Hospital: 519-646-6100, 268 Grosvenor Rd.

Referrals to Other Resources

- Family physicians can provide you with counselling services, and can make referrals to other community resources as needed.
- Specialized services for emotional and interpersonal problems are available, however,

a referral from a physician is often necessary.

We hope that this information is helpful to those who need it. If you are suffering from distress, we encourage you to seek help from an appropriately qualified individual or service centre. Please contact a University or Community Agency that can help you, or to speak with a physician who can refer you to the appropriate resource.

Appendix E

**Western University Non-Medical Research Ethics Board
NMREB Delegated Initial Approval Notice**

Principal Investigator: Prof. David Dozois
Department & Institution: Social Science/Psychology, Western University

NMREB File Number: 108407
Study Title: Romantic Relationships and Mood

NMREB Initial Approval Date: September 26, 2016
NMREB Expiry Date: September 26, 2017

Documents Approved and/or Received for Information:

Document Name	Comments	Version Date
Western University Protocol	Received September 15, 2016	
Recruitment Items	Recruitment Email Version 1.1	2016/09/06
Advertisement	Recruitment Poster Version 1.1	2016/09/06
Advertisement	SONA Ad Version 1.1	2016/09/06
Advertisement	Facebook Ad Version 1.1	2016/09/06
Advertisement	Classroom Ad Version 1.1	2016/09/06
Letter of Information & Consent	Paid Version 2.1	2016/09/06
Letter of Information & Consent	Credit Version 1.1	2016/09/06
Other	Consent to Be Contacted for Future Research Version 1.1	2016/09/06
Instruments	Psychological Distance Scaling Task - Word List - Received August 19, 2016	
Instruments	Self-Referent Encoding Task - Word List - Received August 19, 2016	
Instruments	Young Schema Questionnaire - Short Form - Received August 19, 2016	
Instruments	Beck Depression Inventory II - Received August 19, 2016	
Instruments	Depression Anxiety Stress Scale - 21 Item - Received August 19, 2016	
Instruments	Relationship Attribution Measure - Positive Behaviours - Received August 19, 2016	
Instruments	Relationship Attribution Measure - Received August 19, 2016	
Instruments	Actual-Ideal Self & Partner Scales - Received August 19, 2016	
Instruments	Depressive Interpersonal Relationships Inventory - Reassurance Seeking Subscale - Received August 19, 2016	
Instruments	Investment Model Scale - Commitment - Received August 19, 2016	
Instruments	The Trust Scale - Received August 19, 2016	
Instruments	Investment Model Scale - Satisfaction - Received August 19, 2016	
Instruments	Experiences in Close Relationships Scale - Short Form - Received August 19, 2016	
Instruments	Dyadic Adjustment Scale - Full Length Version - Received August 19, 2016	
Instruments	Revised Dyadic Adjustment Scale - Short Form Version - Received August 19, 2016	
Instruments	Demographics Questionnaire - Received August 19, 2016	
Instruments	Additional (Optional) Questionnaire - Prevention Trial Survey - Received August 19, 2016	
Other	Debriefing Version 1.1	2016/09/06

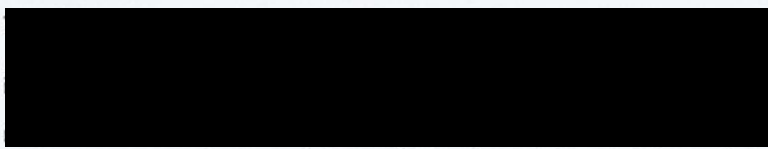
The Western University Non-Medical Research Ethics Board (NMREB) has reviewed and approved the above named study, as of the NMREB Initial Approval Date noted above.

NMREB approval for this study remains valid until the NMREB Expiry Date noted above, conditional to timely submission and acceptance of NMREB Continuing Ethics Review.

The Western University NMREB operates in compliance with the Tri-Council Policy Statement Ethical Conduct for Research Involving Humans (TCPS2), the Ontario Personal Health Information Protection Act (PHIPA, 2004), and the applicable laws and regulations of Ontario.

Members of the NMREB who are named as Investigators in research studies do not participate in discussions related to, nor vote on such studies when they are presented to the REB.

00000941.



Western University, Research, Support Services Bldg., Rm. 5150
London, ON, Canada N6G 1G9 t. 519.661.3036 f. 519.850.2466 www.uwo.ca/research/ethics

Curriculum Vitae

Jesse Lee Wilde

EDUCATION

- Sept 2015 – Present **Master of Science, Clinical Psychology**
University of Western Ontario
Thesis Title: It's not me it's you: Examining the effects of partner-schema organization on relationship processes in depression.
- Sept 2010 – June 2014 **Honours Bachelor of Science, Research Specialist in Psychology with Honours Thesis**
University of Toronto, with High Distinction
Thesis Title: Seeing what they want to see: Insecurely attached individuals differ in their perceptions of and romantic interest in babyfaced adults.
- July 2012 – Sept 2012 **Renaissance History Summer Abroad Exchange Program**
University of Siena, Italy

AWARDS AND HONOURS

- 2017-2018 **Ontario Graduate Scholarship [\$15,000]** OGS awards are merit-based scholarships available to students in all disciplines of graduate study.
- 2016-2017 **Ontario Graduate Scholarship [\$15,000]** OGS awards are merit-based scholarships available to students in all disciplines of graduate study.
- 2016-2017 **Western Graduate Research Scholarship [\$12,201]**
- 2015 –2016 **SSHRC Joseph-Armand Bombardier CGS Program Master's Scholarship [\$17,500]** A funding opportunity to develop research skills and assist in the training of highly qualified personnel by supporting students in the social sciences and humanities who demonstrate a high standard of achievement in undergraduate studies.
- 2015-2016 **Western Graduate Research Scholarship [\$12,600]**
- April 2015 **Ontario Graduate Scholarship [\$15,000, declined]** OGS awards are merit-based scholarships available to students in all disciplines of graduate study.
- July 2014 **Canadian Psychological Association Certificate of Academic Excellence 2014 – Honour's Thesis** This award is in the form of a certificate that each psychology department in Canada distributes each year to the best undergraduate, masters and doctoral theses.
- April 2014 **SSHRC Joseph-Armand Bombardier CGS Program Master's Scholarship [\$17,500, declined]** A funding opportunity to develop research skills and assist in the training of highly qualified personnel by supporting students in

the social sciences and humanities who demonstrate a high standard of achievement in undergraduate studies.

- Sept 2013 **Eric Jackman Scholarship for Psychology [\$700]** Awarded to the top student academically in the Psychology Specialist program in 3rd year at the University of Toronto.
- 2011 – 2014 **Dean's Honour List** Awarded for exceptional academic achievement to students earning a CGPA of 3.5 or higher in each year.
- 2011 – 2012 **Trinity College Chancellor's Award of Academic Achievement [\$400]** A general proficiency award given to Trinity College's top ranked students academically.
- Sept 2010 **University of Toronto President's Entrance Scholarship [\$4000]** Completed pre-requisite courses at the time of admission with an average of 92+.

SERVICE ACTIVITIES & VOLUNTEER WORK

April 2017 – Present **London Interprofessional Healthcare Students' Association –Chair**

Sept 2016 – April 2017 **London Interprofessional Healthcare Students' Association – Vice-Chair**

Sept 2016 – Present **Advocacy Through Action – Marketing Committee**

*Advocacy Through Action is a group of graduate students from the Clinical Psychology department at Western University, dedicated to the dissemination of knowledge on mental health topics and to advocating for improved access to evidence-based psychological services.

PROFESSIONAL AFFILIATIONS

Mar 2017 – Present Association for Behavioral and Cognitive Therapies – *Student Member*

Oct 2016 – Present Canadian Psychological Association – *Western University Graduate Representative*

Sept 2016 – Present Society for the Improvement of Psychological Sciences – *Student Member*

Apr 2016 – Present Canadian Psychological Association – *Student Affiliate & Member of Clinical Section*

Oct 2015 – Present London Regional Psychological Association – *Student Member*

CLINICAL EXPERIENCE

- Jan 2017 – May 2017 **Clinical Psychology Assessment Intern, Initial Assessment Practicum,** Southwest Centre, SJHC London Ontario – Dr. Laura Fazakas-DeHoog
- Conduct psychological assessments

- Jan 2017 – May 2017 **Clinical Psychology Assessment Intern, Initial Assessment Practicum**, Vanier Children’s Centre, London Ontario – Dr. Esther Goldberg & Dr. Sabrina Chiarella
- Conduct psychological assessments
- May 2016 – Sept 2016 **Clinical Psychology Intern, Initial Intervention Practicum**, Student Development Centre, University of Western Ontario – Dr. Susan Ruscher & Kristine Iaboni
- Conduct unstructured intake assessments
 - Provide individual therapy for clients presenting with depression and anxiety

RESEARCH EXPERIENCE

- May 2014 – June 2015 **Clinical Research Coordinator, Full-time, (Paid)** F. W. Thompson Centre for Anxiety Disorders, Psychiatry Department, Sunnybrook Health Sciences Centre – Dr. Neil Rector
Mood and Anxiety Treatment and Research Program
- Assisted with a number of clinical studies involving mood and anxiety disorder patients; conducted structured diagnostic interviews (SCID-IP)
- April 2014 – June 2015 **Principal Investigator**, University of Toronto – Dr. Geoff MacDonald
Insecure Attachment and Perceptions of Potential Partners (Study 2)
- April 2014 – June 2015 **Project Manager**, University of Toronto – Dr. Geoff MacDonald
Investigating Types of Physical Attractiveness
- Mar 2013 – April 2014 **Principal Investigator (Hons Thesis)**, University of Toronto – Dr. Geoff MacDonald
Insecure Attachment and Perceptions of Potential Partners
- Mar 2013 – Sep 2013 **Research Assistant**, University of Toronto – Dr. Geoff MacDonald
Avoidant Attachment and Empathic Accuracy
- Jan 2013 – May 2013 **Mini-thesis Student Investigator**, University of Toronto – Dr. Penelope Lockwood
Social Comparisons in Romantic Relationships
- July 2012 – Dec 2012 **Research Assistant**, University of Toronto – Dr. C. Peter Herman
Self-Image Threat and Restricted Eating

TEACHING EXPERIENCE

- Sept 2016 **Graduate Teaching Assistant, “Applied Psychology”**
Psychology Department, University of Western Ontario
- January 2016 **Graduate Teaching Assistant, “The Psychology of Physical Health and Illness”**
Psychology Department, University of Western Ontario
- August 2015 **Teaching Assistant Training Program**
Student Development Centre, University of Western Ontario

- Attend a three day training session to learn theories, strategies and practice of university teaching
- Apply learned techniques by planning and preparing two lessons to teach to groups of ten students

PROFESSIONAL ACTIVITIES

Ad hoc reviewer *Europe's Journal of Psychology* - 2017

Ad hoc reviewer *Cognition and Emotion* – 2015

Ad hoc reviewer *International Journal of Cognitive Therapy* – 2014

GRADUATE LEVEL COURSES

Professional Foundations of Clinical Psychology

Clinical Skills Pre-Practicum

Research Design and Statistics

Child Psychopathology and Diagnosis

Adult Psychopathology and Diagnosis

Psychotherapy Approaches

Clinical Assessment

RESEARCH CONTRIBUTIONS

Refereed Book Chapters:

Dozois, D. J. A., **Wilde, J. L.**, & Frewen, P. A. (in press). Anxiety, Obsessive-Compulsive, and Trauma-Related Disorders. In D. J. A. Dozois (Eds.) *Abnormal Psychology*. Elsevier, NY.

Rector, N. A., **Wilde, J. L.**, & Richter, M. A. (2017). Obsessive Compulsive Disorder and Comorbidity: Rates, Models, and Treatment Approaches pp. 695-725. In J. Abramowitz, D., McKay, & E., Storch (Eds.) *Handbook of Obsessive-Compulsive Disorder Across the Lifespan*. Wiley, NY.

Conference Symposia:

Wilde, J. L., Rnic, K., Dozois, D. J. A., & Martin, R. A. (June, 2016). Early Maladaptive Schemas and Depression: The Mediating role of Interpersonal Competence. *In a Multi-Modal Examination of Interpersonal Factors in the Development and Maintenance of Depression*. Symposium presented at the 2016 meeting of the Canadian Psychological Association, Victoria, BC.

Poster Presentations:

Wilde, J. L. & Dozois, D. J. A. (November, 2017). *Cognitive Vulnerability to Relational Dysfunction in Depression: The Role of Cognitive Organization of Self- and Partner-Schemata*. Poster accepted to be presented at the 2017 meeting of the Association of Behavioural and Cognitive Therapies, Hilton Conference Centre, San Diego, CA.

Wilde, J. L., Gillies, J. C. P., Szota, L. K., Dozois, D. J. A. & Martin, R. A. (June, 2017). *The role of emotional intelligence and self-criticism in depressive symptoms*. Poster presented at the 2017 meeting of the Canadian Psychological Association, Fairmont Royal York Conference Centre, Toronto, ON.

Gillies, J. C. P., Szota, L. K., **Wilde, J. L.**, Dozois, D. J. A. & Martin, R. A. (June, 2017). *Examining the structure of the Young Schema Questionnaire – Short Form in a non-psychiatric undergraduate*

sample. Poster presented at the 2017 meeting of the Canadian Psychological Association, Fairmont Royal York Conference Centre, Toronto, ON.

Szota, L. K., **Wilde, J. L.**, Gillies, J. C. P., Dozois, D. J. A. & Hayden, E. P. (June, 2017). *Maternal transmission of cognitive vulnerability to depression*. Poster presented at the 2017 meeting of the Canadian Psychological Association, Fairmont Royal York Conference Centre, Toronto, ON.

Wilde, J. L., Dozois, D. J. A. & Martin, R. A. (June, 2016). *Early Maladaptive Schemas and Depression: The Mediating Role of Perfectionism*. Poster presented at the 2016 meeting of the Canadian Psychological Association, Victoria Conference Centre, Victoria, BC.

Wilde, J. L., Maxwell, J.M., & MacDonald, G. (August, 2015). *Seeing what they want to see: Insecurely attached individuals differ in their perceptions of and romantic interest in babyfaced adults*. Poster presented at the 2015 Ontario Science Centre's SEXposium: The Science of Love and Lust Science Outreach Conference, Ontario Science Centre, Toronto, ON.

Wilde, J. L., Maxwell, J.M., & MacDonald, G. (April, 2015). *Seeing what they want to see: Insecurely attached individuals differ in their perceptions of and romantic interest in babyfaced adults*. Poster presented at the 2015 meeting of the University of Toronto Research Specialization in Psychology Poster Fair, University of Toronto, Toronto, ON.

Non-refereed Contributions:

Gillies, J., & **Wilde, J.L.** (April, 2017). *An Introduction to Mindfulness: Tips and Tricks for Parents*. Invited lecture presented at Merrymount as a member of Advocacy through Action, London, ON.

Gillies, J., & **Wilde, J.L.** (February, 2017). *Mindfulness*. Community lecture presented at the London Public Library as a member of Advocacy through Action, London, ON.

Wilde, J. L., & Szota, L. (February, 2017). *Bipolar Disorder: Basics & Beyond*. Community lecture presented at the London Public Library as a member of Advocacy through Action, London, ON.

Szota, L., & **Wilde, J. L.** (February, 2016). *Dodging Depression: Early Detection and Prevention*. Community lecture presented at the London Public Library as a member of Advocacy through Action, London, ON.