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Patterns and Predictors of Stability and Change in Representations of Romantic Relationships in Adolescence and Young Adulthood

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ABSTRACT

Research on the stability of attachment representations across the lifespan has led

to two alternative perspectives: the prototype and revisionist perspectives (Fraley, 2002).

The prototype perspective posits that there is a stable factor underlying fluctuations in

representations and the revisionist perspective argues that there is no inherently stable

factor. The current study employed a latent trait-state model to investigate these

alternative models of stability and change in representations of romantic relationships in

adolescence and young adulthood. The study also sought to identify individual

characteristics and relationship experiences that are associated with changes in

representations. In a sample of 200 participants, representations were assessed by

interview and self-report over seven measurement occasions between ages 15 and 23.

Results were consistent with the prototype perspective emphasizing that a stable, latent

factor exerts a consistent influence over the lifespan. In addition to a stable component,

representations incorporated a component that varies over time. Findings showed that this

fluctuating component of representations was associated with internalizing and

externalizing symptomatology as well as experiences of support and negative interaction

in relationships.

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CHAPTER ONE: INTRODUCTION

According to attachment theory (Bowlby 1969/1982, 1973), the nature of an infant's experiences with caregivers has a significant and far-reaching impact throughout the lifespan. Theoretically, this lasting influence is maintained by an internalized representation that is developed through repeated interactions with a caregiver. This representation influences the way an individual views him or herself, interprets the behavior of others, and behaves in future relationships. Depending on the nature of these experiences, individuals come to see themselves as worthy or unworthy of love and support and others as dependable or undependable.

Representations are significant because, over time, such internalized expectations shape an individual's social development, personality, and close relationships. The link between representations and psychosocial adjustment has been documented in several empirical studies (see Chauhan, Awasthi, & Verma, 2014, for a review). Furthermore, there is evidence that representations have important implications for the development of relationships during adolescence and emerging adulthood (Allen, Moore, Kuperminc, & Bell, 1998; Furman & Flanagan, 1997). Consistent with attachment theory, these studies indicate that representations have important implications beyond childhood.

Evidently, though attachment theory originated in the study of infant-parent relationships, research has expanded to encompass studies across the lifespan (Bartholomew, 1993). In particular, attachment conceptualizations of romantic

relationships have emerged in the literature (Ainsworth, 1989; Shaver & Hazan, 1988). In this line of research, behavioral systems theorists propose that individuals not only haveglobal representations of relationships, but representations specific to romantic relationships (Furman & Wehner, 1994). This framework posits that representations of romantic relationships incorporate experiences in romantic relationships as well as past experiences in other types of relationships. Therefore, representations of romantic relationships are related to, yet distinct from representations other types of relationships (Furman, Simon, Shaffer, & Bouchey, 2002).

Utilizing the behavioral systems framework, the purpose of the current study was to expand upon the current literature by investigating representations of romantic relationships in adolescence and young adulthood. More specifically, the current study sought to address some long-standing questions by examining patterns and predictors of stability and change in representations using longitudinal, multi-method data.

Though the primary focus of this study is on representations of romantic relationships, literature on parent-child representations is also reviewed. Behavioral systems theory is rooted in attachment theory and the study of parent-child relationships; therefore, this body of literature provides an important framework for hypotheses in the current study. Accordingly, studies from both the parent-child and romantic relationship literature are used to inform the current study.

Patterns of Stability and Change in Representations

One of the core assumptions of both attachment theory and behavioral systems theory is that representations are relatively stable over time. However, the empirical data

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on the stability of representations is somewhat ambiguous. Though some studies report significant associations over long periods of time (Waters, Merrick, Treboux, Crowell, & Albersheim, 2000), others report little to no stability (Lewis, Feiring, & Rosenthal, 2000). Therefore, whether representations are predominately stable over time or are largely subject to change remains an important question as these two perspectives have vastly different implications for understanding the impact representations can have on later relationships (Baldwin, Keelan, Enns, & Koh-Rangarajoo, 1996; Cozzarelli, Hoekstra, & Bylsma, 2000).

In response to this longstanding question about stability and change in representations, two alternative frameworks have emerged in the literature, the *prototype* and *revisionist* perspectives (Fraley, 2002). Though both perspectives incorporate processes of stability and change, there are key differences in how each perspective predicts these processes will unfold over time. According to the *prototype* perspective, individual differences in representations are driven, in part, by a stable, latent factor—a prototype that remains unchanged over time, thus creating stability and continuity in an individual's experiences (Sroufe, Egeland, Carlson, & Collins, 2005). This perspective emphasizes the idea that though there may be fluctuations in representations, these fluctuations occur around an unchanging latent prototype. That is, an individual may experience greater than expected responsiveness from a significant other and revise their representation accordingly. However, according to the prototype perspective, this revision is only temporary and the individual will tend to revert back to their prototypical representation to some extent.

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An alternative to the prototype perspective is the *revisionist* perspective (Fraley, 2002). According to the revisionist perspective, representations are relatively fluid structures that are sensitive to changes in an individual's environment (e.g., Kagan, 1996; Lewis, 1997). Some stability may arise because representations shape the environment one chooses, how one interprets experiences, and the nature of responses one evokes from others. Even still, a number of factors can intervene to influence development and this perspective emphasizes the idea that representations are subject to lasting changes. Therefore, the changes that do occur over time accumulate in a fashion that makes it difficult to predict security over the long run (Lewis, 1997, 1999). According to this perspective, representations are continually revised and updated and therefore earlier representations may or may not correspond to later representations. This differs from the prototype perspective that suggests there will always be some degree of correspondence between earlier and later representations.

In the past, advocates of the revisionist perspective highlighted test-retest correlations that were small in magnitude as evidence that representations were ultimately subject to change and lack an underlying stable factor (Lewis, et al., 2000). However, Fraley (2002) argued that the magnitude of the correlation is not as informative as the pattern of correlations over time. He proposed that the prototype perspective suggests that test-retest correlations will approach a non-zero value over time, and the revisionist perspective suggests that correlations will approach zero as the test-retest interval gets larger. Fraley (2002) examined such patterns of stability in a metanalysis that included studies measuring representations first in infancy and again at a second time

point that ranged from one month to eighteen years later. Results indicated that representations were moderately stable across time, and that patterns of stability were consistent with prototype dynamics.

In a later study Fraley, Vicary, Brumnbaugh, and Roisman (2011) expanded this line of research in important ways. This study assessed representations of relationships with parents and romantic partners daily over a 30-day period in one sample and weekly over a year in a second sample. In both samples, patterns of test-retest correlations provided support for the prototype perspective for both types of relationships.

These two studies by Fraley and colleagues (2002, 2011) made invaluable contributions to our understanding of patterns of stability of representations by providing empirical evidence for a stable, underlying component of representations that remains unchanged over time. However, there were some limitations to these studies and further investigation is needed. In the metanalysis, the studies that were included assessed representations on only two occasions. Multiple time points are needed to better capture patterns over time (Fraley, 2002). The second study reviewed here included multiple times points, but the span of time covered was relatively short. In order to more thoroughly examine how patterns unfold over time, multiple assessments gathered over a longer period of time are needed (Fraley et al., 2011).

Limitations notwithstanding, Fraley and colleagues (2011) made an important contribution by extending the prototype perspective to romantic relationships. However, demonstrating that prototype processes underlie romantic representations raises questions about how to conceptualize prototypes of romantic relationships. For relationships with

parents, prototypes are theoretically formed in infancy. Romantic relationships do not start until later in life; therefore, it is not as clear how and when prototypes are formed. Using a behavioral systems theory framework, it can be postulated that individuals approach novel romantic relationships with expectations based on their current or past experiences in other types of relationships. Therefore, prototypes of romantic relationships are theoretically formed based on experiences with parents and other close relationships. Consistent with this idea, previous studies have shown that representations of romantic relationships are moderately related to representations of relationships with parents (Collins & Reed, 1990; Feeney & Noller, 1990; Furman, Simon, Shaffer, & Bouchey, 2002; Hazan & Shaver, 1987; Owens et al., 1995).

The current study expanded the literature on prototype processes in romantic relationships and addressed limitations of previous studies by measuring representations at multiple times over the course of several years. As outlined below, the current study also extended previous research by incorporating individual characteristics and relationship experiences thought to be relevant to representations.

Predictors of Changes in Representations

Like attachment theory, behavioral systems theory places great emphasis on the interplay between an individual and his or her experiences in the development of representations (Furman & Wehner, 1994). Therefore, in addition to studying patterns of change, it is also important to identify variables that are associated with these changes in order to gain a more complete understanding of how representations develop in adolescence and young adulthood. To date, the link between representations and

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psychosocial adjustment has been documented in several empirical studies (see Chauhan et al., 2014, for a review). However, most studies examine individual differences in representations as predictors of psychosocial outcomes. No study has investigated factors associated with fluctuations in representations by first separating the stable component of representations (trait factor) from the variable component (state factor). Therefore, to the extent that findings from the first part of this study confirm the prototype perspective and the existence of both a stable trait factor and a variable state-like factor, the second aim of the current study was to identify factors associated with the state-like factor of representations that fluctuates over time.

First, this study examined individual characteristics of internalizing and externalizing symptoms. As mentioned previously, it is well established that representations and symptoms of psychopathology are related. For example, anxious adolescents are at an increased risk for depressive symptoms, and avoidant adolescents are rated as more angry or hostile as compared to their more secure counterparts (Dozier, Stovall, & Albus, 1999). Higher levels of security are related to lower levels of internalizing behaviors and fewer deviant behaviors (Allen et al., 1998). Indeed, many studies have suggested that insecurity makes individuals vulnerable to symptomatology (Cicchetti, Toth, & Lynch, 1995). Furthermore, research shows that individuals with psychopathology are more prone to attachment insecurity and fluctuations in security (Davila, Burge, & Hammen, 1997).

The link between symptomology and representations is rooted in the idea that when people experience psychological symptoms and negative emotions, negative

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thinking may be exaggerated and lead to changes in perceptions of the self and others.

That is, when individuals experience greater internalizing and externalizing symptoms,

they tend to have a more negative bias in their approach to the world. During periods of

increased symptomatology, these individuals are likely to interpret interactions with

others more negatively and develop more pessimistic expectations of relationships. More

specifically, when individuals are experiencing internalizing symptoms, they may be

more withdrawn and less capable of seeking support in relationships. When individuals

are experiencing externalizing symptoms, they may be prone to reacting with anger,

mistrust, and hostility in their relationships. These negative interactions are likely to

diminish positive aspects of relationships and thus lead to views of relationships

characterized by less trust, support and intimacy.

In addition to examining the link between individual symptomatology and

representations, the current study also looked at the link between relationship experiences

and representations. In previous studies, it has been well established that more secure

individuals have more satisfying and well-functioning intimate relationships (see Feeney,

1999, for a review). More specifically, relationship experiences of support, stress and

conflict are linked to representations (Davila & Cobb, 2004; see Mikulincer & Shaver

2007, for a review). Research shows that less secure individuals display poorer conflict

management skills (Creasey, 2002). Also, attachment security is related to greater support

seeking (Mikulincer, Florian, & Weller, 1993). These associations are thought to arise

because when individuals experience more support or fewer negative interactions in

relationships, they are more confident in a partner's availability and worry less about

rejection and therefore develop more secure representations. During times when individuals are in relationships characterized by less support and more conflict, their views of relationships are less secure.

By examining individual characteristics and relationship experiences in the context of the prototype model of representations, the current study aimed to increase our understanding of factors that contribute to fluctuations in representations over time. Theoretically, representations are sensitive to overall levels of symptomatology as well as periods of higher or lower symptomatology. By examining the link between representations and symptomatology at multiple time points, the current study is able to capture both types of associations. The same is true for relationship experiences of support and negative interaction. This is especially relevant during adolescence when relationship partners frequently change and therefore levels of support and negative interaction may vary from one relationship to the next.

Relational Styles and Working Models

As the study of internalized representations of romantic relationships has developed, two approaches have emerged in the literature- *relational styles* and *relational working models* (Furman & Wehner, 1994). The *relational styles* approach focuses on self-perceptions of self and others in relationships (Bartholomew & Horowitz, 1991; Hazan & Shaver, 1987). Styles are typically assessed through self-report measures of relationships, such as the various romantic attachment questionnaires (e.g., Collins & Read, 1990; Hazan & Shaver, 1987). Self-reported relational styles are typically characterized by two underlying dimensions: anxiety and avoidance (Brennan, Clark, &

Shaver, 1998). Anxious styles are characterized by the degree to which an individual worries about rejection and the availability of their partner and avoidant styles are characterized by the degree to which an individual prefers self-reliance and is uncomfortable with closeness in romantic relationships (Hazan & Shaver, 1987). Those with less avoidant and anxious styles are considered secure; these individuals are comfortable with intimacy and worry less about rejection.

The *relational working models* approach emphasizes the coherence and consistency of an individual's description of experiences in relationships (Furman, Simon, Shaffer & Bouchey, 2002; Furman & Wehner, 1994; George, Kaplan & Main, 1996). Models are assessed using interview techniques designed to evaluate internal representations (Crowell & Owens, 1996; Furman, 2001, George, Kaplan, & Main, 1985). Similar to styles, working models are characterized by two underlying dimensions: avoidant and anxious (Haydon, Roisman, Owen, Booth-LaForce, & Cox, 2014). These are sometimes referred to in the literature as dismissing and preoccupied, respectively. Those with less avoidant and anxious models are considered secure.

Both model and style approaches make important contributions to our understanding of representations of romantic relationships. Interview techniques that tap working models of relationships can provide information not accessible through self-report and also counter social-desirability biases (Furman, Simon, Shaffer & Bouchey, 2002; Jacobvitz, Curran & Moller, 2002; Main, Hesse & Goldwyn, 2008). At the same time, overt and consciously reportable expectations about romantic relationships are likely to make unique contributions to understanding adjustment and social behavior.

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Furthermore, it is important to examine both models and styles, as studies have found that self-reported styles and interview-assessed working models are not highly correlated, suggesting that each approach captures relatively independent aspects of representations of romantic relationships (Crowell, Fraley, & Shaver, 2008; Roisman et al., 2007). In the current study, both interview and self-report methods were incorporated to capture multiple aspects of the development of representations and examine the value of utilizing different methodologies of measuring representations.

The Current Study

Despite the growing body of literature on representations in adolescent romantic relationships, there are gaps in our understanding of the development of representations and the literature is limited in several important ways. Most notably, the stability of representations over time is topic of continuing debate. Though many longitudinal studies are available, results are inconsistent and insufficient for answering long-standing questions about the stability of representations (Fraley, 2002). Such studies examining stability and change often use only two time points. Multiple time points are needed to adequately assess stability and change during adolescence and young adulthood. In Aim 1, the current study addresses methodological and conceptual limitations of the current literature by using multiple measurement occasions to compare the two leading perspectives on the processes underlying stability and change in representations - the prototype and revisionist perspectives.

Next, the current study addressed the need in the current literature for a better understanding of how individual symptomology and relationship characteristics are

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linked to changes in representations. In Aim 2, I examined how the patterns identified in Aim 1 were associated with other aspects of development including individual characteristics (internalizing and externalizing symptomatology) and romantic relationship experiences of support and negative interaction.

Finally, studies of representations tend to rely on self-report measures of styles and therefore do not capture important aspects that can only be accessed through interview measures of models. Incorporating both methods in a single study is also important to understanding the different contributions each approach makes to our understanding of representations. Therefore, in the current study, I employed both interview and self-report methods to examine styles and models.

To summarize, in Aim 1, I examined whether the prototype or the revisionist perspective best fit the pattern of changes in representations in adolescent romantic relationships. Based on the work of Fraley and colleagues (2002, 2005, 2011), it is hypothesized that results from these analyses will support the prototype perspective. In Aim 2, I sought to identify factors that are associated with changes in representations over time. Based on the rationale provided above, it is hypothesized that higher levels of internalizing and externalizing symptoms will be associated with more anxious and avoidant representations. Likewise, it is expected that less support and more negative interaction will be associated with more anxious and avoidant representations.

CHAPTER TWO: METHODS

Participants

The participants were part of a longitudinal study investigating the role of

relationships with parents, peers, and romantic partners on psychosocial adjustment. Two

hundred 10th grade high school students (100 males, 100 females; M age = 15 yr 10.44

mo old, SD = .49) were recruited from a diverse range of neighborhoods and schools in a

large Western metropolitan area by distributing brochures and sending letters to families

residing in various zip codes and to students enrolled in various schools in ethnically

diverse neighborhoods. We were unable to determine the ascertainment rate because we

used brochures and because letters were sent to many families who did not have a 10th

grader. To insure maximal response, we paid families $25 to hear a description of the

project in their home. Of the families that heard the description, 85.5% expressed interest

and carried through with the Wave 1 assessment.

Participants were selected so that the sample was representative of the ethnic and

racial composition of the United States; thus, the sample consisted of 11.5% African

Americans, 12.5% Hispanics, 1.5% Native Americans, 1% Asian American, 4% biracial,

and 69.5% White, non-Hispanics. With regard to family structure, 57.5% were residing

with two biological or adoptive parents, 11.5% were residing with a biological or

adoptive parent and a step-parent or partner, and the remaining 31% were residing with a

single parent or relative. Approximately 85% of the participants had begun dating by the

tenth grade and 75.5% had a romantic relationship at least one month in duration. At Wave 7, 87.6% said they were heterosexual/straight, whereas the other participants said they were bisexual, gay, lesbian, or questioning. We chose to retain the sexual minorities in the sample to be inclusive. The sample was of average intelligence and comparable to national norms on multiple measures of substance use, internalizing and externalizing symptomatology (Furman, Low, & Ho, 2009).

Procedure

For the purposes of the current study, data were drawn from the first 7 waves of the study (wave 1 mean age = 15.27 years). Data were collected on a yearly basis in waves one through four, and once every 18 months for waves five through seven. Participant retention was excellent; all 200 participated in waves 1 and 2, 199 participated in wave 3, 196 participated in wave 4, 192 participated in wave 5, 186 participated in wave 6, and 178 in wave 7. There were no differences on the variables of interest between those who did and did not remain in the study

Participants participated in a series of laboratory sessions in which they were interviewed and completed questionnaires. The mother or custodial parental figure completed questionnaires about the participant's adjustment (mother: Wave 1 $N = 200$; Wave 2 $N = 185$; Wave 3 $N = 176$; Wave 4 $N = 173$; Wave 5. $N = 163$; Wave 6 $N = 156$; Wave 7; $N = 145$). A close friend nominated by the participant also completed questionnaires about the participant's adjustment (friends: Wave 1 $N = 192$; Wave 2 $N = 167$; Wave 3 $N = 154$; Wave 4 $N = 142$; Wave 5 $N = 137$; Wave 6 $N = 126$; Wave 7 $N = 113$). Participants, mothers, and friends were compensated financially for completing the

questionnaires. The study was approved by the University of Denver's Institutional Review Board. The confidentiality of participants' data was protected by a Certificate of Confidentiality issued by the U.S. Department of Health and Human Services.

Measures

Behavioral Systems Questionnaire (BSQ). Participants completed the Behavioral Systems Questionnaire (BSQ), which assessed self-perceptions of relational styles for relationships with romantic partners (Furman & Wehner, 1999). The BSQ resembles attachment style questionnaires, but assesses intimacy and closeness with respect to care giving, affiliation, and sexuality, as well as attachment. Such items were incorporated because representations were expected to incorporate expectations regarding these behavioral systems as well as attachment (Furman & Wehner, 1994). Using a 5-point Likert scale, participants were asked to rate their agreement with each of 36 items that presented statements related to each behavioral system. For example, a preoccupied item referring to caregiving was "I get too wrapped up in my (romantic partners') worries"; a secure item referring to affiliation was "My (romantic partners) and I make frequent efforts to see and talk with each other"; a preoccupied item referring to sexual approach was "I get too wrapped up in what my (romantic partners) want in terms of physical intimacy"; a dismissing item referring to attachment was "I rarely turn to (my romantic partners) when upset." These items were divided into three scales that assessed secure, dismissing (avoidant), or preoccupied (anxious) styles.

In the current literature on representations, two dimensions are consistently reported: anxious and avoidant (see Mikulincer & Shaver, 2007). Thus, we expected to

find evidence of these two dimensions in participants' scores on the BSQ. Principal axes factor analyses with oblique rotation were conducted to determine the factor structure of the BSQ and a two-factor solution was found to provide the best fit theoretically. Consistent with existing literature, the two factors were: (a) an avoidant style on which all dismissing items primarily loaded positively and all secure items primarily loaded negatively and (b) an anxious style on which all preoccupied items primarily loaded. These dimensions are similar to the avoidance and anxiety dimensions often found in adult attachment studies (Brennan et al., 1998; Simpson, Rholes, & Nelligan, 1992). Accordingly, this study used two relational style scores: 1) an avoidant score, which was computed by reverse scoring the secure items and averaging them together with the dismissing items; 2) an anxious style score, which was the average of the preoccupied items. Internal consistencies of scale scores were satisfactory (Cronbach alphas ranged from .83 to .94).

Network of Relationships Inventory: Behavioral Systems Version (NRI). In each wave participants completed the Network of Relationships Inventory (NRI) about relationships with their romantic partner (NRI; Furman & Buhrmester, 1985). For each item, participants used a 5-point Likert scale to rate how much the description was characteristic of their relationship with their most important romantic partner during that wave. The 5-item NRI Support Factor was used to measure features of social support related to attachment, caregiving, and affiliation including participant seeks safe haven or secure base, participant provides safe haven or secure base, and companionship. The internal consistency of scale scores was satisfactory ($M \alpha = .89$). The 6-item NRI

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Negative Interaction Factor measured conflict, antagonism, and criticism within the relationship. The internal consistency of scale scores was satisfactory (M α = .92).

Beck Depression Inventory (BDI). The Beck Depression Inventory (BDI) was administered to assess depressive symptoms (Beck, Rush, Shaw, & Emery, 1979). The Beck Depression Inventory is a broadly used 21 item self-report measure of depressive symptoms designed for individuals 13 and over. Each item is rated on a 4 point scale (M α = .86).

State-Trait Anxiety Inventory (STAI). Anxiety was assessed using the 20-item Trait Anxiety scale (Spielberger, 1983). Each item was rated on a 4-point scale and then averaged to create a total anxiety score for each wave (M α = .92).

Child/Adult Behavior Checklist (CBCL/ABCL). Friends and mothers reported on the participant's externalizing symptoms by completing the externalizing items of the Child Behavior Checklist (CBCL) in Waves 1-3, and the externalizing items on Adult Behavior Checklist (ABCL) in Waves 4-7 (Achenbach, 1991, 2003). To make the scales comparable across measures and to allow growth over waves, the raw scores of the 26 externalizing items that were common to the CBCL and ABCL versions were averaged (Mother M α = .88; Friend M α = .85).

Youth/Adult Self Report (YSR/ASR). Participants completed the Youth Self-Report (YSR) in Waves 1-3 and the Adult Self-Report (ASR) in Waves 4-7 (Achenbach, 1991, 2003). Internalizing and externalizing scores were derived from the 20 and 26 items that were comparable on the two versions (M α = .81 & .87, respectively).

Externalizing symptoms. Several measures were combined to derive a composite measure of externalizing symptoms: participants' reports on the externalizing scales of the YSR and ASR, and mothers and friends' reports on the externalizing scales of the CBCL and ABCL. To make the scores of the participants', friends', and mothers' reports comparable, each of the measures was standardized across waves, and then scores were averaged to derive a composite measure of externalizing symptoms.

Internalizing symptoms. Several measures were used to create a composite of internalizing symptoms: the BDI, the STAI and the internalizing scales of the YSR and ASR. To make the scores on the different measures comparable, the scores were standardized across waves and averaged to form a composite measure of internalizing symptoms.

The Romantic Interview (RI). The Romantic Interview was derived from the Adult Attachment Interview (George, Kaplan, & Main, 1984), but was designed to assess working models of romantic relationships (Furman, 2001). Like the AAI, the RI is a semi- structured interview that typically takes between 45 min and an hour and a half to administer. Many questions are similar in intent and content to those of the AAI. For example, interviewees are asked to select five adjectives to describe particular romantic relationships and are asked to illustrate their adjectives with specific examples. They are asked what they did when they were upset, whether they have ever felt rejected, and what they have gained from their romantic relationships. Some modifications are included to take into account the differences between parent – child relationships and romantic relation- ships. For example, interviewees are asked what they did when they were upset,

but not what they did when they were hurt or ill, as adolescents do not commonly turn to romantic partners for support in these particular instances. Additionally, the RI includes questions about the caregiving and affiliative systems in romantic relationships as well as the attachment system. For example, the interview includes questions about how the participant responded when a partner was upset as well as what the participant did when he or she was upset.

Coding of interviews. The interviews were audiotaped and subsequently transcribed verbatim. Working models (states of mind) were primarily assessed using Main and Goldwyn's (1985) scales and Crowell and Owens's (1996) valuing of intimacy and autonomy scales. As in the coding of the AAI, these working model (state of mind) scale scores assess coherence of discourse and are the primary basis for deriving an overall classification of the working model as secure, dismissing, preoccupied, unresolved/disorganized or as cannot classify.

The nature of the analyses in the present study required continuous (vs. categorical) scores. Accordingly, the coders not only classified the transcript but they also rated how prototypically secure, dismissing, and preoccupied the transcript was on a 9-point scale (1 = none of the features of the type, 9 = prototypic instance). These ratings were based on the same system as the classifications; in fact, discriminant function analyses using the three prototype ratings accurately predicted 100% of the boys' classifications and 98% of the girls' classifications. As with the BSQ, the dismissing and secure prototype scores of the RI were strongly negatively correlated; thus, these two were combined to create an avoidant working model dimension by subtracting the secure

prototype score from the dismissing prototype score. An anxious working model dimension was calculated from the preoccupied prototype rating.

All coders had attended Main and Hesse's Adult Attachment Workshop and had received additional training and practice on the coding of romantic narratives. Pairs of coders independently coded 11% of the transcripts. The reliability of the anxiety and avoidance dimensions was satisfactory (mean intraclass correlation coefficients [ICCs] = .73 & .75, respectively).

CHAPTER THREE: RESULTS

Preliminary Analyses

The correlation matrix, means, and standard deviations for each variable appear in

Tables 1 and 2. Consistent with extant literature, representations were strongly correlated

with each other over time; however, this correlation decreased as the interval of time

between measurements increased. Results show that for avoidant styles, the mean

autocorrelation over an interval of one wave was .51. These autocorrelations decreased

to .18 as the interval increased to seven waves. For anxious styles, the mean

autocorrelation over an interval of one wave was .53. These autocorrelations decreased to

.29 as the interval increased to seven waves. For working models, the mean

autocorrelation over an interval of one wave was .51 for avoidant models. These

autocorrelations decreased to .21 as the interval increased to seven waves. For anxious

models, the mean autocorrelation over an interval of one wave was .40. These

autocorrelations decreased to .21 for anxious as the interval increased to seven waves.

Analytic Strategy

As shown in Figure 1, Trait-State-Error (TSE) and similar models partition the

variance in repeated measurements of a construct into three different components (Kenny

& Zautra, 1995; Cole, Martin, & Steiger, 2005). The *trait* component is the aspect of the

construct that is stable over time; all administrations load equally onto this factor. The

state component is the part of the construct that changes over time; state components are

connected to one another via an autoregressive structure. The *error* component represents random variance over time (i.e., measurement error). Though both the state and error components vary over time, the state component at one time point is influenced by the state component at the previous time point where as the error component is not correlated with other factors in the model. The TSE model allows the presence of an underlying trait factor to be tested by comparing the fit of the model including a trait factor to one with the variance of the trait factor fixed to 0 to determine whether the inclusion of the trait factor significantly improves the fit of the model.

To address Aim 1 of the current study, romantic styles and working models were modeled using the TSE framework to investigate the presence of an underlying trait factor. When the inclusion of the trait factor significantly improves the fit of the model, this provides support for the prototype perspective. When it does not, this provides support for the revisionist perspective. Next, to address Aim 2, time-varying predictors were added to each TSE model to examine the contribution of these factors to the state-like component of representations. Each of these factors (externalizing symptoms, internalizing symptoms, support and negative interaction) were modeled separately. A sample TSE model with time varying covariates is illustrated in Figure 2.

Following recommendations by Kenny and Zautra (1995), autoregressive paths and error variances were set to be equal across assessment waves. Second, it was assumed that the representations were measured with perfect precision by setting the paths from the representation constructs to their measured counterparts to 1.00 and the corresponding measurement errors to 0. All modeling was performed using Mplus 6.11

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(Muthen & Muthen, 2010) using maximum likelihood estimation. This approach estimates the model parameters with all information that is available rather than deleting cases with incomplete data (Enders, 2001). Model fit was assessed using the comparative fit index (CFI) and root mean squared error of approximation (RMSEA). Good fit is indicated by CFI's above .95 and RMSEA no larger than .06 (Hu & Bentler, 1999).

Aim 1: Trait-State-Error Modeling of Styles and Working Models

Table 4 provides a summary of the findings presented in this section. The latent TSE model of avoidant styles fit the data well (CFI = .98, RMSEA = .04). For avoidant styles, 20.83% of the variance was attributable to a trait factor and 33.33% of the variance was attributable to a state factor. The remaining 45.83% of variance was error variance. When the trait component was removed by fixing its variance to 0, the model did not fit the data as well ($\Delta\chi^2 = 10.30$, $p < .001$).

The latent TSE model of anxious styles fit the data well (CFI = 1.0, RMSEA = 00). For anxious styles, 24.14% of the variance was attributable to a trait factor and 27.59% of the variance was attributable to a state factor. The remaining 48.28% of variance was error variance. When the trait component was removed by fixing its variance to 00, the model did not fit the data as well ($\Delta\chi^2 = 7.52$, $p < .001$).

The latent TSE model of avoidant working models fit the data adequately (CFI = .92, RMSEA = .06). For avoidant working models, 34.15% of the variance was attributable to a trait factor and 58.22% of the variance was attributable to a state factor. The remaining 7.63% of variance was error variance. When the trait component was

removed by fixing its variance to 0, the model did not fit the data as well ($\Delta\chi^2 = 30.43$, $p <$

.001).

The latent TSE model of anxious working models fit the data adequately (CFI =

.90, RMSEA = .06). For anxious working models, 14.83% of the variance was

attributable to a trait factor and 15.86% of the variance was attributable to a state factor.

The remaining 69.31% of variance was error variance. When the trait component was

removed by fixing its variance to 0, the model did not fit the data as well ($\Delta\chi^2 = 3.71$, $p =$

.05).

To summarize, a seven-wave latent TSE model fit the data adequately for both

avoidant and anxious styles and working models. This suggests that representations

consist of both an unchanging trait factor and a less stable state factor. In all four models,

the fit of the model including the trait component was better relative to the model that did

not include the trait component. This suggests the presence of a stable trait factor in both

styles and working models and therefore provides evidence for the prototype perspective.

Aim 2: Predictors of State Contributions to Styles and Working Models

In the next set of analyses, time varying predictors were added to each TSE model

to examine the contribution of various factors to the state-like factor of styles and

working models. Path coefficient and model fit statistics for each model are presented in

Table 5.

In the first set of models, the externalizing symptom composite was examined as a

predictor of the state component of representations. In each TSE model of styles and

working models, the state factor at each time point was regressed onto the externalizing

composite score for the corresponding time point. As noted in Table 5, greater externalizing symptoms significantly predicted more avoidant and anxious styles and more anxious working models. Greater externalizing symptoms also predicted more avoidant working models, but at the trend level.

In the next set of models, the internalizing symptom composite was examined as a predictor of the state component of representations. In each TSE model of styles and working models, the state factor at each time point was regressed onto the internalizing composite score for the corresponding time point. As noted in Table 5, greater internalizing symptoms significantly predicted more avoidant and anxious styles and more anxious working models. Internalizing symptoms were positively related to avoidant working models, but this parameter was not significant.

In the next set of models, negative interaction was examined as a predictor of the state component of representations. In each TSE model of styles and working models, the state factor at each time point was regressed onto the negative interaction score for the corresponding time point. As noted in Table 5, greater negative interaction significantly predicted more avoidant and anxious styles and more avoidant and anxious working models. However, model fit was poorer for these models.

In the next set of models, support was examined as a predictor of the state component of representations. In each TSE model of styles and working models, the state factor at each time point was regressed onto the support score for the corresponding time point. As noted in Table 5, greater support significantly predicted less avoidant and anxious styles. Greater support symptoms also predicted less avoidant working models,

but only at the trend level. Support was negatively related to anxious working models, but this parameter was not significant.

CHAPTER FOUR: DISCUSSION

Overview

Behavioral systems theory (Furman & Wehner, 1994) is rooted in attachment theory and provides a key framework for understanding romantic relationships. One of the core tenets of this theoretical perspective is that representations of relationships are relatively stable across the lifespan. However, research on patterns of stability and change in representations over time is ambiguous with some studies finding high levels of stability and others showing little continuity over time (Lewis et al., 2000; Waters et al., 2000). As a result, alternative models of stability in representations have evolved. The prototype model posits that there is a stable trait-like factor underlying representations thus making them inherently stable. According to the revisionist model, representations are relatively fluid structures that lack an enduring underlying construct.

In Aim 1, the current study used TSE models to test these two alternative theories of stability of representations of adolescent romantic relationships. Consistent with previous literature and hypotheses of the current study, findings provided empirical support for the prototype model. When compared to models that lacked a stable trait factor, models that included this trait factor provided a significantly better fit to the data for both interview and self-report measures of representations. The best-fitting models also included a state-like component that varied over time thus indicating that though representations are fundamentally stable over time, they are also open to revision.

The second aim of the current study was to identify factors associated with variations in representations over time. The majority of the models were consistent with hypotheses. Overall, findings showed that individual characteristics of internalizing and externalizing symptomatology were associated with the state-like component of representations. Similarly, relationship experiences of support and negative interaction were associated with variations in representations over time. Specific findings are described in detail below.

Aim 1: Trait-State-Error Modeling of Styles and Working Models

Though results indicated that the inclusion of a stable trait factor significantly improved the fit of all four models examined in Aim 1, the percent of variance accounted for by the trait factor differed somewhat among models. For the trait factor, the percent of variance accounted for ranged from 15 to 34 with anxious models having the smallest trait variance percentage and avoidant models having the largest. Though there is no ready interpretation for these differences, the magnitude of the variance accounted by the trait factor is not as central to the hypotheses of the current study. Instead, the existence of a trait factor in each model, as evidenced by the improvement in model fit with the inclusion of the trait factor, is most relevant to understanding prototype dynamics.

Though these results provide evidence for the presence of an underlying aspect of representations that does not change over time (the trait component), a portion of the variance in representations was also attributed to the state factor in each of these models. The state factor represents the fluctuating aspect of representations such that later levels

are influenced by earlier levels, as well as by other factors such as individual characteristics and relationship experiences.

In the current study, the state factor accounted for 16 to 58 percent of the variance in the TSE models of representations. Therefore, these findings are consistent with the assumption that representations are subject to changes over time. Previous studies showing lower test-retest correlations for representations over time reflect these findings and the idea that representations do change over time. However, the prototype perspective does not claim that test-retest correlations will be high, but rather that they will not approach zero. Therefore, even though the portion of the model that is stable over time is relatively small, these findings are consistent with the prototype perspective.

Finally, the percent of variance accounted for by the error component ranged from 8 to 69 in the current study. In TSE models, the error component represents random fluctuations (i.e. measurement error) that occur over time. Fluctuations due to the error component differ from those due to the state component because they are not related to other components of the model (i.e. do not fluctuate in predictable ways). By accounting for error variance, the model removes random sources of fluctuation in scores from the analysis of change in the state component.

Aim 2: Predictors of State Contributions to Working Models and Styles

Findings from Aim 2 of the current study show that individual characteristics were related to fluctuations in representations. For the most part, when adolescents experienced higher levels of internalizing and externalizing symptoms, they also experienced more anxious and more avoidant representations. When adolescents exhibit

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more internalizing or externalizing symptoms, they have a more difficult time getting their emotional needs met by a partner because these behaviors may serve to distance them from their partner or may overwhelm their partner. This, in turn, could lead to greater withdrawal from relationships characteristic of individuals with avoidant representations, or heightened uncertainty about getting needs met that is characteristic of individuals with anxious representations.

Though the current study examined individual characteristics as predictors of the state component of representations, the association is likely reciprocal. That is, fluctuations in representations could also lead to changes in symptomatology. During times when an individual views a partner as unwilling or unable to meet their needs, he or she may experience an increase in feelings of anxiety or depression or may act out in ways consistent with externalizing symptoms.

Findings from Aim 2 analyses also showed that times of lower levels of support and higher levels of negative interaction were associated with more anxious and more avoidant representations. When adolescents are in more supportive relationships, they likely come to view partners as more dependable and have a level of comfort with intimacy that is typical of individuals with less anxious and less avoidant representations. Likewise, adolescents who are in relationships characterized by patterns of negative interaction may come to view partners as less available and less capable of meeting their needs, thus leading to more anxious and more avoidant representations of romantic relationships.

Again, though the current study examined relationship experiences as predictors of the state component of representations, the association is likely reciprocal. That is, fluctuations in representations could also lead to changes in experiences. When an individual views a partner as less dependable and available, he or she may be less likely to seek support from a partner thus leading to lower levels of support. Likewise, individuals with more avoidant or anxious representations may not be as skilled in negotiating conflicts with a partner, thus leading to higher levels of negative interaction in the relationship.

There were a few exceptions to this pattern of findings. Internalizing symptoms were not significantly related to avoidant working models and support was not significantly related to anxious working models. Furthermore, the associations between avoidant working models and externalizing symptoms and support were only significant at the trend level. These anomalies occurred with interview measures of representations and not with self-report measures. It is possible that shared method variance contributed to the more consistent associations observed for styles. However, measures of internalizing and externalizing symptoms included reports from mothers and friends in order to reduce bias that results from shared method variance. Also, out of a possible 16 associations in the current study, 12 were significant and 2 reached a trend level; therefore, results as a whole are considered to be valid and there is no ready interpretation for these anomalies.

Despite these few anomalies, results are largely consistent for models and styles and the individual characteristic and relationship experience predictors. Though styles

and models are measured in different ways, this provides evidence that both constructs are influenced in similar ways by individual characteristics and relationship experiences. Furthermore, consistency across findings shows that fluctuations in representations are associated with a broad range of factors including internalizing symptoms, externalizing symptoms, support and negative interaction. Overall, these findings are consistent with the literature on adjustment and romantic representations that links security to better functioning in many domains (see Chauhan et al., 2014, for a review). Taken together, findings suggest that representations can provide a marker for functioning in a number of different areas with less anxious and avoidant relationships being generally indicative of greater psychosocial wellbeing in terms of both intra- and inter-individual functioning. This is consistent with literature suggesting that as individuals move into adolescence, representations can be conceptualized as a marker of capacity for emotion regulation and thus influences a broad range of aspects of well-being (Allen & Manning, 2007; Allen & Miga, 2010).

General Discussion

To summarize, the current study shows that in addition to being influenced by an underlying stable prototype, representations of adolescent romantic relationships are impacted by individual characteristics and relationship experiences at any given time point. Thus it can be extrapolated that as these factors change, representations change accordingly over time. This may be particularly salient for romantic relationships during adolescence and young adulthood as this is a period of development often characterized by changes in relationship partners and the emergence of symptomatology. These

findings highlight the importance of building healthy relationships and reducing symptomology during adolescence in order to foster the development of secure representations. Given that representations have a far-reaching impact on multiple areas of psychosocial development, it is important to understand factors that contribute to variations in representations.

Findings from the current study support the idea put forth by Fraley and Brumbaugh (2004) that changes in representations can be conceptualized as temporary deviations from a stable latent prototype. Therefore, even though a person experiences changes in security, such as those described in the second aim of this study, the individual will tend to revert back to equilibrium levels of security more consistent with his or her prototype of relationships. In theory, this stable prototype is not subject to change. However, the question remains as to whether or not the degree of influence this prototype has on the system can be altered. Introducing another enduring latent factor such as a stable relationship partner could counteract the influence of the prototype (Fraley & Brumbaugh, 2004). Therefore, the presence of a prototype underlying representations does not necessarily mean that an individual will be hampered by a less secure representation throughout their lifespan. The incorporation of another stable influence could counterbalance the effects of the existing prototype such that the individual's equilibrium is modified as long as the counterbalancing influence is present.

Though the current study provides clear evidence for the presence of a prototype, the question of exactly what a prototype is remains. Based on findings from the current study, a prototype is a latent construct that exerts an enduring influence on

representations of relationships over time. However, when and how this prototype is formed is less clear. Behavioral systems theory proposes that representations of romantic relationships are influenced by past experiences in other types of relationships. Using this framework, the romantic prototype identified by the current study can by interpreted as a latent construct based on earlier experiences with parents and other close relationships. The current study began measuring representations in the 10th grade; therefore, by definition, the prototype captured by the current study reflects experiences prior to this time point. However, this is not to say that the first time point in the current study marks the actual starting point of the processes under investigation.

Previous research has shown that differences in representations are associated with the Big Five personality traits (see Noftle & Shaver, 2006, for a review). Therefore, it could be argued that stable factors such as personality traits could account for the stability in representations found in the current study. To test this possibility, Fraley and colleagues (2011) examined prototype dynamics in representations after controlling for the Big Five personality traits and found that the prototype model provided a better fit for the data than did the revisionist model. Though the current study did not include personality measures, previous research (Fraley et al., 2011) suggests that the prototype dynamics underlying representations are not better explained by stable personality traits.

By documenting prototype processes beginning in early adolescence, the current study provides an important extension of the work by Fraley and Roberts (2005) that examined the prototype perspective beginning in late adolescence. Findings from the current study suggest that even early in the course of the development of romantic

relationships, prototype processes are present. Most adolescents have somewhat limited romantic relationship experience at this age; therefore, the presence of a stable prototype likely reflects past experiences in other types of relationships in addition to nascent romantic experiences. Moreover, representations in this early stage of relationship development could also reflect beliefs about what romantic relationships are like that developed even before the adolescent became involved with romantic partners. Adolescents in the current study were in or had already had a romantic relationship at the time of initial data collection. Future research could examine representations at an even earlier age in order to better understand the prototypes in the context of adolescents entering their first romantic relationship.

The notion that representations of romantic relationships are rooted in experiences with parents and other close relationships raises questions about associations between representations of different types of relationships. Previous studies show that in fact, representations of relationships with romantic partners are not strongly associated with representations of other types of relationships (Furman et al., 2002). However, as with associations over time, the magnitude of the association is not as important as the pattern of associations over time in terms of understanding prototype dynamics. It would be interesting to examine TSE models that include representations of different types of relationships. Alternatively, future research could model representations of parents separately from representations of romantic relationships and investigate the correlations between the prototypes of each type of relationship.

As hypothesized, findings from the current study were largely consistent for styles and working models. This is especially notable given that previous studies have shown that the empirical overlap between interview-based measures and self-report measures is small (Roisman, Holland, Fortuna, Fraley, Clausell & Clarke, 2007). Though this suggests that each measure captures somewhat independent aspects of representations, findings from the current study highlight that prototype dynamics underlie both constructs. Furthermore, this study shows both models and styles are influenced in similar ways by individual characteristics and relationship experiences. These findings highlight unanswered questions about why findings are similar for models and styles even though the two different measures have not been found to be highly related in previous studies. With a larger sample than available in the current study, it may be possible to investigate the correlations between the prototype component of each measure. This is a promising area for future research.

Limitations and Future Directions

One limitation of the current study was that the sample size was small for the modeling approach that was used. As a result, power was low for some of the analyses and it was not possible to test additional variations of the model. For example, when cross-lag paths were added to the model, convergence was not reached. Also, in order for models to converge, models had to be constrained such that parameters were the same at each time point. However, the models included in the current study converged relatively quickly, thus indicating that the results are reliable.

Also due to small sample size, the current study was not able to model males and females separately in order to examine gender differences. Past studies of romantic representations have failed to reveal clear differences between males and females (Collins & Read, 1990; Hazan & Shaver, 1987). However, a more recent metanalysis showed that overall, males had more avoidant and less anxious romantic representations as compared to females (Del Giudice, 2011). However, mean level differences in representations between males and females do not necessarily indicate that there are gender differences in patterns of stability. Therefore, though it is not believed that gender differences would significantly change conclusions drawn from the current study, a better understanding of gender differences in representations is an important area for future research.

Another potential limitation of the current study is the use of a normative sample. Based on previous research, the general population has relatively secure representations with low rates of avoidance and even lower rates of anxious representations (see van Ijzendoorn & Bakermans-Kranenburg, 1996, for a review). It is important to study normative populations so that findings are generalizable and an overall high level of security is not as relevant to examining prototype dynamics. However, it could make it more difficult to measure fluctuations in representations over time because more secure representations tend to be more stable (Davila et al., 1997), and individuals with more secure representations likely have more stable relationships (Kirkpatrick & Davis, 1994). It would be interesting to compare these results to a study of a higher risk population. In such a population, relationship experiences and individual characteristics might have a greater influence on representations.

Though the TSE model has several advantages and is well-suited for testing the prototype model, there are some inherent limitations to the model. Most notably, the TSE framework does not model growth over time. Therefore, though results of the current study reveal that there is a trait-like component underlying romantic representations in adolescence and young adulthood, the TSE models used fail to capture any growth that occurs during this developmental period. It is possible that representations of romantic relationships become more secure over time as relationships mature and become more stable. This is not the focus of the current study, but is an important area for future research.

Though it is speculated that the prototype was linked to earlier relationships, the data used in the current study did not allow for this hypothesis to be formally tested. It would be interesting for future studies to measure representations beginning in infancy and through adolescence in order to further explore the relationship between earlier and later representations.

To date, the current study and the study by Fraley and colleagues (2011) are the only two studies examining prototype dynamics in romantic relationships. The majority of participants in both studies were in dating relationships. Future research should examine prototype dynamics for individuals who are married or in stable, long-term relationships. In theory, a prototype is not expected to change and will always exert some amount of influence. However, the influence the prototype exerts on the system is impacted by other factors. As mentioned previously, the presence of another enduring latent factor, such as a stable relationship partner, could counteract the influence of the

prototype. For example, in order for a person to become more secure, a positive and persistent source of influence (e.g. a stable, supportive partner) must be incorporated into the system. Future research should examine this notion by studying prototype dynamics in long-term relationships that are characterized by stable levels of support and negative interaction.

These limitations notwithstanding, the present study contributes to the literature by increasing our understanding of patterns of stability and change in romantic representations and the links between representations and individual characteristics and relationship experiences. By using multiple measurement occasions, this study was able to capture patterns not discernable in studies employing only two time points. Most notably, the current study provided support for the prototype perspective of representations in romantic relationships in adolescence and young adulthood. Moreover, the study documented the associations between fluctuations in representations and individual characteristics and relationship experiences. Overall, these findings are consistent with a behavioral systems perspective and increase our understanding of how representations develop across the lifespan.

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Table 1.

Correlations and Descriptive Statistics for Avoidant Styles and Models and Time Varying Predictors

	1	2	3	4	5	6	7	8	9	10	11	12	13	14
1. AvdS1	1.00													
2. AvdS2	.32*	1.00												
3. AvdS3	.30*	.42*	1.00											
4. AvdS4	.35*	.31*	.54*	1.00										
5. AvdS5	.36*	.33*	.47*	.56*	1.00									
6. AvdS6	.22*	.28*	.37*	.46*	.63*	1.00								
7. AvdS7	.18	.29*	.38*	.44*	.49*	.60*	1.00							
8. AvdM1	.12	.40*	.18*	.21*	.19*	.24*	.22*	1.00						
9. AvdM2	.24*	.29*	.35*	.32*	.27*	.32*	.13	.42*	1.00					
10. AvdM3	.23*	.27*	.17*	.26*	.24*	.24*	.12	.24*	.41*	1.00				
11. AvdM4	.18*	.23*	.24*	.35*	.33*	.34*	.16*	.22*	.46*	.45*	1.00			
12. AvdM5	.07	.16	.06	.15	.29*	.37*	.24*	.22*	.37*	.45*	.50*	1.00		
13. AvdM6	.11	.14	.12	.22*	.20*	.19*	.26*	.30*	.27*	.41*	.41*	.56*	1.00	
14. AvdM7	.22*	.20*	.30*	.28*	.19*	.19*	.23*	.21*	.29*	.32*	.42*	.36*	.26*	1.00
15.External	.11	.19*	.12	.32*	.16*	.23*	.48*	.01	.06	.13	.16*	.19*	-.01	.48*
16. Internal	.09	-.05	.13	.23*	.08	.11	.31*	-.08	-.04	.09	.15	.11	-.05	.31*
17. Neg Int	.06	.30*	.10	.13	.17	.13	.07	.16	.07	.10	.06	.15	-.08	.07
18. Support	-.21*	-.33*	-.25*	-.38*	-.46*	-.47*	.21	-.07	-.16	-.23*	-.16	-.01	-.06	.21
N	143	154	165	167	165	173	164	140	156	160	164	153	143	141
Mean	-3.67	-3.82	-3.91	-3.97	-3.98	-4.14	-4.22	-.35	-.70	-.59	-.57	-.96	-1.19	-1.13
SD	.50	.59	.59	.58	.56	.56	.56	5.06	4.60	4.60	4.72	4.34	4.12	4.35

Note. AvdS1 - AvdS7 refers to avoidant style scores at each of the 7 waves of data collection and AvdM1 – AvdM7 refers to avoidant model scores. Variables 15 – 18 are correlated with the corresponding wave of data collection for the paired variable 1-14. External: composite measure of externalizing symptoms; Internal: composite measure of internalizing symptoms; Neg Int: Network of Relationship Inventory Negative Interaction scale; Support: Network of Relationship Inventory Support scale. * *p* < .05.

Table 2.

Correlations and Descriptive Statistics for Anxious Styles and Models and Time Varying Predictors

	1	2	3	4	5	6	7	8	9	10	11	12	13	14
1. AnxS1	1.00													
2. AnxS2	.41*	1.00												
3. AnxS3	.44*	.52*	1.00											
4. AnxS4	.39*	.47*	.60*	1.00										
5. AnxS5	.36*	.45*	.40*	.53*	1.00									
6. AnxS6	.28*	.26*	.37*	.51*	.53*	1.00								
7. AnxS7	.29*	.29*	.26*	.46*	.47*	.58*	1.00							
8. AnxM1	-.06	-.14	-.21*	-.01	.03	.01	.13	1.00						
9. AnxM2	-.01	.10	-.03	-.09	.10	.03	.16	.33*	1.00					
10. AnxM3	-.08	.01	.08	.07	.21*	.14	.18*	.38*	.39*	1.00				
11. AnxM4	-.02	.05	.07	.11	.16*	.10	.18*	.33*	.33*	.44*	1.00			
12. AnxM5	-.10	-.12	.11	.07	.27*	.19*	.09	.20*	.20*	.47*	.40*	1.00		
13. AnxM6	-.07	.00	.14	.17	.08	.27*	.20*	.23*	.29*	.28*	.40*	.41*	1.00	
14. AnxM7	.11	-.02	.11	.09	.08	.16	.15	.21*	.27*	.36*	.50*	.43*	.42*	1.00
15.External	.11	.12	.25*	.25*	.17*	.36*	.26*	.04	.20*	.18*	.23*	.23*	.26*	.14
16. Internal	.32*	.25*	.27*	.35*	.42*	.29*	.38*	.07	.23*	.33*	.28*	.24*	.30*	.24*
17. Neg Int	-.13	.22*	.21*	.24*	.25*	.40*	.30*	-.19	.38*	.17	.21*	.12	.36*	.12
18. Support	-.07	-.21*	-.23*	-.32*	-.29*	-.29*	-.26*	.05	.13	-.05	-.07	-.09	.01	-.04
N	143	154	165	167	165	172	164	140	156	160	165	154	146	143
Mean	2.34	2.21	2.19	2.20	2.20	2.07	2.01	1.75	1.92	2.56	2.57	3.06	2.41	2.69
SD	.54	.59	.61	.62	.64	.65	.66	1.45	1.65	2.14	2.12	2.18	1.96	2.04

Note. AnxS1 - AnxS7 refers to anxious style scores at each of the 7 waves of data collection and AnxM1 – AnxM7 refers to anxious model scores. Variables 15 – 18 are correlated with the corresponding wave of data collection for the paired variable 1 – 14. External: composite measure of externalizing symptoms; Internal: composite measure of internalizing symptoms; Neg Int: Network of Relationship Inventory Negative Interaction scale; Support: Network of Relationship Inventory Support scale. * $p < .05$.

Table 3.

Summary of Correlations among Time Varying Predictors

	Externalizing	Internalizing	Negative Interaction	Support
Externalizing	1.00			
Internalizing	.38*	1.00		
Negative Interaction	.26*	.20*	1.00	
Support	-.19*	-.19*	-.19*	1.00

Note. Values represent mean concurrent correlations between predictors of state factors across 7 waves of data collection. * *p* < .05.

Table 4.

Trait State Error Model Summaries

	Avoidant Styles	Avoidant Models	Anxious Styles	Anxious Models
Variances				
Trait	.05 (20.83)	6.98 (34.15)	.07 (24.14)	.43 (14.83)
State	.08 (33.33)	11.90 (58.22)	.08 (27.59)	.46 (15.86)
Error	.11 (45.83)	1.56 (7.63)	.14 (48.28)	2.01 (69.31)
Total	.24	20.44	.29	2.54
Autoregressive path	.77***	.15	.80***	.91***
χ^2	31.93	41.73	21.76	39.34
df	24	24	24	24
CFI	.98	.92	1.0	.93
RMSEA	.04	.06	0	.06

Note. Autoregressive path values represent constrained, unstandardized estimates for the autoregressive component of the state factor. Percentage of variance accounted for is provided in parentheses. RMSEA = root-mean-square-error of approximation; CFI = comparative fit index. *** $p < .001$.

Table 5.

Path Coefficients (β) of Predictors of State Factors and Model Fit Statistics

	Avoidant Styles	Avoidant Models	Anxious Styles	Anxious Models
Externalizing β	.15(.09)***	.15(.61)[+]	.17(.10)*	.17(.16)**
CFI	.97	.97	.98	.98
RMSEA	.05	.05	.04	.04
Internalizing β	.09(.04)**	.06(.25)	.17(.17)***	.25(.30)*
CFI	.98	.98	.98	.96
RMSEA	.04	.04	.04	.05
Support β	-.68(.37)***	-.25(.70)[+]	-.10(.10)**	-.03(.03)
CFI	.99	.94	.98	.99
RMSEA	.01	.06	.03	.01
Negative Interaction β	.19(.10)***	.13(.55)**	.25(.11)*	.38(.42)***
CFI	.93	.87	.90	.80
RMSEA	.05	.06	.06	.07

Note. Path coefficients (β) represent the relationship between the specified representation and predictor of the state factor. Positive values indicate, for example, that an increase in externalizing behavior is associated with an increase in avoidant styles. Unstandardized estimates are in parentheses. [+] $p < .10$, * $p < .05$, ** $p < .01$, *** $p < .001$.
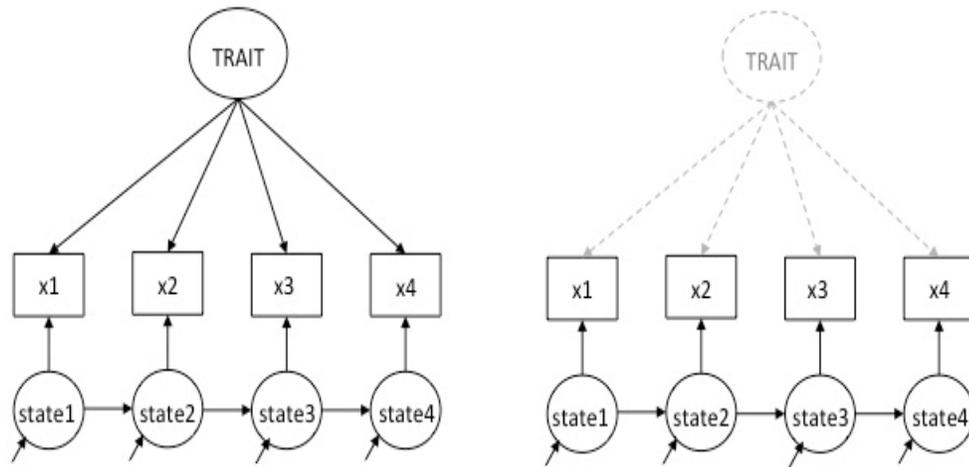
Figure 1. The model on the left illustrates prototype dynamics assuming that at any point in time, a representaiton (x) is the fucntion of a stable prototype (trait), a changing component (state), and random variance (error). The model on the right illustrates assumptions of revisionist dynamics by setting the variance of the prototype (trait) to zero.
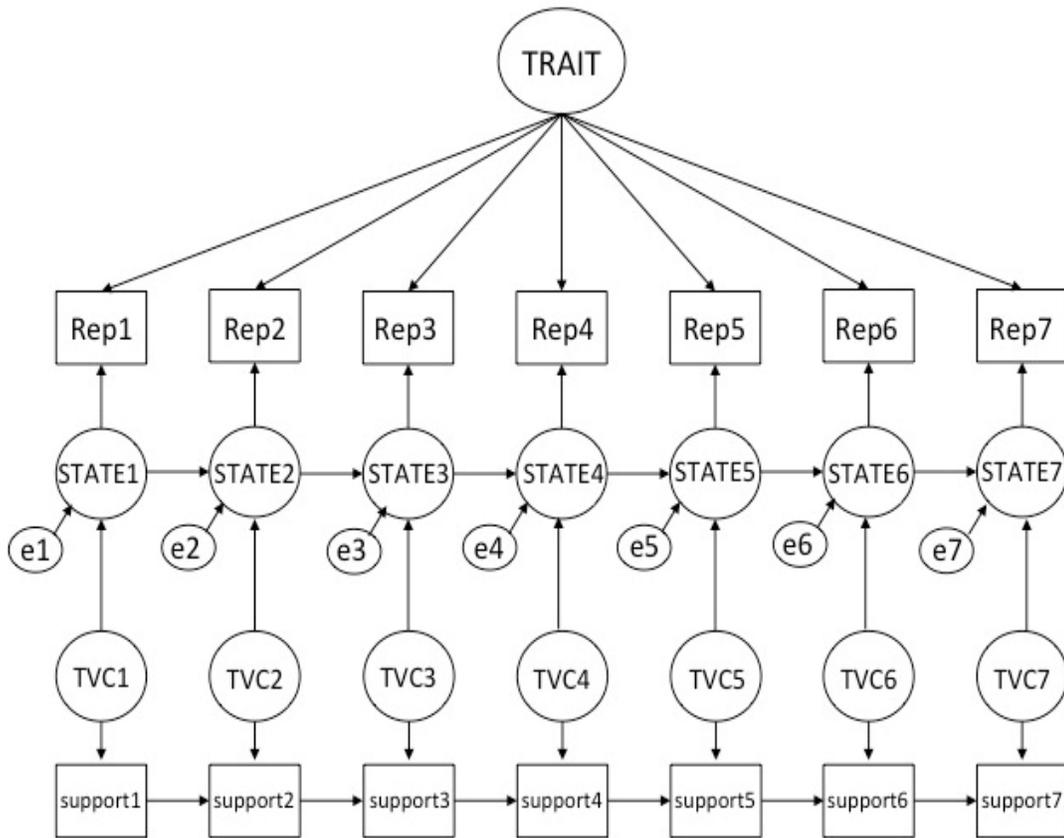
Figure 2. Basic Trait-State-Error model of representations (Rep) with predictors of state factor (TVC). Autoregressive paths and error variances were set to be equal across assessment waves. All pathways from predictors to observed variables are fixed at 1.