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Integrating theory-driven and empirically-derived models of personality development and psychopathology: A proposal for DSM V

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ABSTRACT

Although there is growing consensus that the fifth edition of the *Diagnostic and Statistical Manual of Mental Disorders* (*DSM*) should replace the categorical view of mental disorders with a dimensional approach rooted in personality theory, no consensus has emerged about the dimensions that should be the basis of the new classification system. Moreover, recent attempts to bridge the gap between psychiatric nosology and personality theories have primarily relied on empirically-derived dimensional personality models. While this focus on empirically-derived personality theories may result in a psychometrically valid classification system, it may create a classification system that lacks theoretical and empirical comprehensiveness and has limited clinical utility. In this paper, we first argue that research findings increasingly suggest that an integration of theory-driven and empirically-derived models of personality development is not only possible, but also has the potential to provide a more comprehensive and clinically-relevant approach to classification and diagnosis than either approach alone. Next, we propose a comprehensive model of personality development and psychopathology based on an integration of contemporary theory-driven and empirically-derived models of personality. Finally, we outline the implications of this approach for the future development of DSM, and especially its potential for developing research that addresses the interactions between psychosocial and neurobiological processes implicated in personality development and psychopathology.

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1. Introduction

With plans underway for the fifth edition of the DSM, an increasing number of critical assessments of the current DSM classification system has been published (Blatt & Levy, 1998; Blatt & Luyten, 2010; Livesley, 2001; Millon, 2000; Parker, 2005; Westen, Shedler, & Bradley, 2006; Widiger, Simonsen, Sirovatka, & Regier, 2006; Widiger & Trull, 2007). These assessments clearly indicate that we are on the brink of a new era in psychiatric diagnosis which may lead to a radical shift in the conceptualization, classification, and treatment of mental disorders (Brown & Barlow, 2005; Luyten & Blatt, 2007). In particular, several authors have pointed out that a number of the implicit and explicit assumptions underlying DSM-III and its successors has not been validated by empirical research (Blatt & Luyten, 2010; Luyten & Blatt, 2007; Westen, Novotny & Thompson-Brenner, 2004). Most of these criticisms center on the categorical approach of DSM, arguing that future editions of the DSM should embrace a dimensional view of psychopathology (Spitzer, First, Shedler, Westen, & Skodol, 2008; Widiger et al., 2006).

Despite the growing consensus that future editions of the DSM should adopt a dimensional perspective, considerable disagreement exists concerning the dimensions that should form the basis of a new classification system. Yet, there is increasing consensus that these dimensions should be based on contemporary theories of personality development and personality organization (Clark, 2005; Krueger, Markon, Patrick, Benning, & Kramer, 2007; Watson, 2005). Broadly speaking, these personality theories fall into two categories, i.e., they are either more empirically-derived or more theory-driven personality theories. Among the more empirically-derived models, research has recently concentrated mainly on the Internalization–Externalization model (I/E; Achenbach, Krukowski, Dumenci & Ivanova, 2005), the Five Factor Model (FFM; McCrae & Costa, 1999), the Tripartite Model (Clark, 2005; Watson, 2005), and Livesley's dimensional personality model (Livesley, 1998, 2008). Among the more theory-driven personality theories, Blatt's two polarities model of relatedness and self-definition (Blatt, 2008; Blatt & Shichman, 1983) and Beck's Sociotropy-Autonomy model (Beck, 1983, 1999), contemporary interpersonal models (e.g., Pincus, 2005; Wiggins, 1991), attachment approaches (e.g., Mikulincer & Shaver, 2007), and self-determination theory (Deci & Ryan, 2000; Ryan, Deci, Grolnick & La Guardia, 2006) have received much research attention.

Yet, unfortunately, empirically-derived and theory-driven theories of personality pathology have progressed relatively independently, resulting in a marked division between these dimensional models of personality development. Moreover, recent attempts to bridge the gap between psychiatric nosology and personality theories have primarily relied on empirically-derived dimensional models (Blatt & Luyten, 2010; Pincus, 2005). While this focus on empirically-derived personality theories may result in a psychometrically valid classification system, an exclusive focus on purely empirically-derived models may create a classification system that has little clinical utility and may not be the best model to study the nature and processes involved in the treatment of mental disorders (Blatt & Luyten, 2010; Fonagy, 2008).

In this paper, we argue that research findings increasingly suggest that an integration of theory-driven and empirically-derived models of personality development and organization is not only possible, but that it also may provide a more comprehensive and clinically-relevant approach to classification and diagnosis than either approach alone. First, we discuss the current divide between empirically-derived and theory-driven dimensional models of personality development and psychopathology, which is rooted in a historical divide between both approaches. We then review research findings indicating a growing empirical convergence among theory-driven models in suggesting that interpersonal relatedness and self-definition are central coordinates for understanding personality development and for organizing, classifying and treating psychological disorders. Next, we discuss research findings demonstrating the growing convergence among empirically-derived theories of personality development with theory-driven models of personality. Finally, we propose an integrative, hierarchically organized model of the development and nature of psychopathology, and discuss the implications of this model for research and clinical practice.

2. Theory-driven and empirically-derived models in psychiatric classification

From a historical perspective, psychiatric classification has always been characterized by two competing approaches (Luyten & Blatt, 2007; Pincus, 2005). On the one hand, theory-driven approaches emphasize that classification should be based on theoretical conceptions about the nature of psychopathology. This often involves specifying the nature of a number of dimensions that characterize psychopathology, as in Beck's (Beck, 1983) cognitive approach to personality disorders. From this perspective, theory has primacy and drives research efforts. Empirical research usually has a role within a theory-driven framework, but research findings are interpreted in the context of theoretical principles. Moreover, these models often emphasize that classification must inform treatment, reflecting their origin in clinical practice and psychotherapy research.

Empirically-derived approaches, in contrast, are mainly concerned with systematically identifying dimensions or categories underlying mental disorders, independent of theory. In others words, methods and research findings have primacy. Over the last several decades, this approach received much impetus from the development of sophisticated multivariate methods as exemplified by large-scale epidemiological and behavioral-genetic studies that have employed multivariate techniques to identify dimensions underlying mental disorders (e.g., Jang, Taylor, & Livesley, 2006; Krueger & Markon, 2008). Likewise, in biological science, genetic studies, for instance, have used new genome-wide scanning techniques to identify empirically associations between particular psychiatric disorders and genes (Plomin & Davis, 2009). Theory has a role in most of these studies by providing theoretical frameworks and measurement instruments, but these studies have no specific commitment to any particular theoretical framework and make few if any assumptions about how many dimensions or categories of psychopathology exist. Theory, therefore, is secondary to empirically identifying underlying dimensions or categories, placing "all candidate elements, or facets, on the same level playing field, thereby allowing data to determine how these elements are organized" (Krueger et al., 2007, p.647). Moreover, less emphasis typically occurs in empirically-derived approaches on the relevance of classification systems to inform prevention and treatment, although, ultimately, it is of course hoped that a classification system will inform clinical practice.

The distinction between theory-driven versus empirically-derived approaches reflects, in many respects, a more top-down versus bottom-up approach towards the classification of psychopathology.

Yet, both approaches are not mutually exclusive and some approaches clearly have characteristics of both. For instance, the FFM of personality, although initially based in empirical studies of descriptions of personality, has involved post-hoc attempts to link empirically-derived personality dimensions to psychosocial as well as biological theories of personality development (e.g., Costa & McCrae, in press; Widiger & Trull, 2007).

Both approaches to psychiatric classification also have their disadvantages. Theory-driven approaches may overemphasize one domain of functioning (such as particular personality traits or neurochemical imbalances) to the neglect of others (Millon, Meagher, & Grossman, 2001). On the other hand, purely empirical approaches may be methodologically sound, but may lack clinical utility because they fail to provide clinicians with a theoretically coherent view of psychopathology (First, 2005; Fonagy, 2008; Millon et al., 2001).

In many respects, both approaches reflect the many difficulties and pitfalls in categorizing psychiatric disorders, as illustrated by the fact that psychiatric nosology constantly has shifted between these two approaches. DSM-II (APA, 1968), for instance, was in large part a theory-driven approach based on psychodynamic and biological speculations about the nature of psychiatric disorders. In fact, one of the main reasons DSM-III (APA, 1980) adopted a descriptive, atheoretical classification system was to circumvent the problems associated with reaching a consensus regarding theory-driven models that could inform a new classification system. At the time of the introduction of DSM-III, psychosocial research often lacked methodological rigor and the neurosciences were still in their infancy, limiting the development of a theory-driven and etiologically-based classification system (Luyten & Blatt, 2007). Currently, however, many believe that the atheoretical approach has outlived its usefulness and that theoretical, empirical, and methodological developments in both psychosocial research and the neurosciences now make feasible the development of an etiologically-based diagnostic system of psychiatric disorders (e.g., Clark, 2005; Insel & Cuthbert, 2009; Parker, 2005; Watson, 2005). Hence, the complexity of mental disorders, both in terms of etiopathogenesis as well as their description and categorization, demand an integration of theory-driven and empirically-derived approaches.

One way out of this conundrum is therefore to consider theory-driven and empirically-derived approaches as complementary. In particular, we argue that a number of currently dominant theory-driven approaches show a remarkable convergence with regard to the core defining features of psychopathology, both at the *empirical/descriptive* and at the *theoretical level*. Livesley (1998, 2001, 2008), for instance, has argued persuasively with respect to personality disorders that two major dysfunctions characterize these disorders from a descriptive point of view, i.e., problems with *relatedness (or attachment)* on the one hand and problems with *self-definition* (*or self and identity*) on the other. Recently, the Personality and Personality Disorders Work Group preparing the DSM-V Personality Disorders section has advanced a similar argument and has proposed that diagnosis of personality pathology should first entail a rating of the severity of impairments in levels of self and interpersonal functioning (Skodol, 2009; Skodol & Bender, 2009; see also www.dsm5.org). Consistent with these views, we argue that broad ranging research findings support the assumption that impairments in issues of relatedness and self-definition are the central defining *descriptive* features of both Axis I (symptom-based) and Axis II (personality) disorders. Moreover, on a *theoretical* level, we argue that temporary or chronic impairments in the capacity for relatedness and self-definition (and associated impairments in the mental representations or cognitive-affective schemas of self and others), underlie these descriptive features of psychiatric disorders and therefore provide central dimensions to organize both theory-driven and empirically-derived approaches to psychopathology. Moreover, we review extensive empirical research showing that these central dimensions in psychopathology are in theoretically meaningful ways related to the central dimensions in currently dominant empirically-derived models of personality development. Hence, we argue that an integration of current dominant theory-driven and empirically-derived models of personality development and psychopathology may provide the basis for a more encompassing classification system of psychopathology that can inform both fundamental research as well as clinical practice. Such an integration overcomes a number of important limitations of a classification system based on theory-driven or empirically-derived models alone and may have greater explanatory power than either system alone.

3. Relatedness and self-definition in personality development, psychopathology, and the therapeutic process

3.1. Contemporary theories of relatedness and self-definition

A remarkable convergence among a number of dominant theory-driven approaches to psychopathology suggests that *relatedness* and *self-definition* are two fundamental psychological dimensions that provide a theoretical matrix for the classification of psychopathology linking concepts of psychopathology to processes of personality development, variations in normal personality organization, as well as to mechanisms of therapeutic action (Blatt, 2008; Livesley, 1998, 2001; Mikulincer & Shaver, 2007; Pincus, 2005; Skodol & Bender, 2009; Wiggins, 1991).

Establishing meaningful, mutually satisfying, reciprocal interpersonal relationships (relatedness) and a differentiated, integrated, realistic, essentially positive sense of self (self-definition), have been recognized in both theoretical conceptualizations and empirical research as central dimensions in personality development across a wide variety of disciplines, ranging from philosophy, evolutionary and cross-cultural psychology, to personality and social psychology, and psychoanalysis (for an extensive review, see Blatt, 2008). These two basic modalities of human existence have been referred to in different theories as autonomy and surrender (Angyal, 1951), agency and communion (Bakan, 1966), achievement or power versus affiliation or intimacy (McAdams, 1985; McClelland, 1985; Winter, 1973; see also Freud, 1930/1961), dominance versus warmth (Pincus, 2005), autonomy/competence versus relatedness (Ryan et al., 2006), and, more recently, as attachment avoidance versus attachment anxiety (Mikulincer & Shaver, 2007; Sibley, 2007) and autonomy versus sociotropy (Beck, 1983, 1999).

Although the labels that refer to these central dimensions differ across various theories, these so-called *two polarities models of personality* share a number of assumptions about the nature of normal and pathological personality development which have been supported by a broad range of research programs using different assessment strategies with different populations (Blatt & Luyten, 2009; Mikulincer & Shaver, 2007). In particular, these models converge to suggest that different forms of psychopathology are best conceptualized in terms of distorted modes of adaptation that derive, at different developmental levels, from variations and disruptions of the developmental interaction between issues concerning relatedness and self-definition in normal psychological development (Blatt, 2008; Blatt & Shichman, 1983). Hence, different forms of psychopathology are therefore best viewed as distorted attempts to maintain a balance between relatedness and self-definition (Blatt & Luyten, 2010; Mikulincer & Shaver, 2007). Moreover, this emphasis on relatedness and self-definition as central coordinates in normal and disrupted personality development has also allowed researchers to investigate the role of these dimensions in understanding the therapeutic process (Blatt, 2008; Daniel, 2006), thus linking treatment research to formulations of normal and disrupted personality development.

In the next sections, we discuss the theoretical and empirical convergence among the currently five most prominent theory-driven

two polarities models of normal and disruptive personality development, i.e., (a) Blatt's two configurations model, (b) Beck's cognitive personality model, (c) contemporary interpersonal formulations, (d) contemporary attachment theory, and (e) Deci and Ryan's self-determination theory.

3.2. Two polarities in normal personality development

3.2.1. Blatt's two polarities model

From psychodynamic and cognitive developmental perspectives, Blatt and colleagues (Blatt, 1974, 2008; Blatt & Blass, 1990, Blatt and Shichman, 1983) proposed that personality development evolves, from infancy to senescence, through a complex dialectic transaction between two fundamental psychological developmental dimensions, between (a) relatedness–the development of increasingly mature, intimate, mutually satisfying, reciprocal, interpersonal relationships and (b) self-definition–the development of an increasingly differentiated, integrated, realistic, essentially positive sense of self or identity. These two fundamental developmental processes evolve through a life-long complex synergistic, hierarchical, dialectic transaction such that progress in both the relatedness (or anaclitic) and self-definition (or introjective) developmental line facilitates progress in the other (see Fig. 1). An increasingly differentiated, integrated, and mature sense of self (introjective line) emerges out of constructive interpersonal relationships (anaclitic line) and, conversely, the continued development of increasingly mature interpersonal relationships is contingent on the development of a more differentiated and integrated self-definition and identity. Stated otherwise, meaningful and satisfying relationships contribute to the evolving concept of self, and a revised sense of self leads, in turn, to more mature levels of interpersonal relatedness.

3.2.2. Beck's cognitive-behavioral model of personality

Beck (1983, 1999) similarly distinguished sociotropy and autonomy as central dimensions that define individual differences in personality development. Sociotropy (or social dependency), according to Beck (1983, p. 273), "refers to the person's investment in positive interchange with other people ... including passive-receptive wishes (acceptance, intimacy, understanding, support, guidance)." Sociotropic individuals are "particularly concerned about the possibility of being disapproved of by others, and they often try to please others and maintain their attachments" (Robins & Block, 1988, p. 848). Autonomy (or individuality), according to Beck (1983, p. 272), refers to the person's "investment in preserving and increasing his independence, mobility, and personal rights; freedom of choice, action, and expression; protection of his domain, ... and attaining meaningful goals." Autonomous, achievement-oriented individuals are mainly concerned about the possibility of personal failure and often try to maximize their control over the environment in order to reduce the probability of failure. Like Blatt, Beck views a good balance between autonomy and sociotropy as the hallmark of adaptive personality functioning.

Extensive research has demonstrated validity of the distinction between anaclitic/sociotropic and introjective/autonomous personality dimensions in both clinical and nonclinical samples (see summaries in Blatt, 2004, 2008; Clark & Beck, 1999; Luyten, Corveleyn, & Blatt, 2005; Zuroff, Mongrain, & Santor, 2004). In particular, empirical investigations indicate consistent differences in the current and early life experiences (Blatt, 2008; Blatt & Homann, 1992), typical responses to stress (Besser, Luyten, Vliegen, & Blatt, in press; Luyten et al., 2005) as well as basic character and relational style (Luyten et al., 2005; Zuroff et al., 2004) associated with these two dimensions. Moreover, as discussed below, Blatt's and Beck's models have also been conceptually and empirically linked to contemporary interpersonal approaches (Pincus, 2005; Ravitz, Maunder, & McBride, 2008; Wiggins, 2003), attachment theory (Sibley, 2007), and to self-determination theory (Shahar, Blatt, Zuroff, & Pilkonis, 2003; Shahar, Kalnitzki, Shulman, & Blatt, 2006).

3.2.3. Contemporary interpersonal theories

Contemporary interpersonal models also converge to suggest that two orthogonal dimensions underlie interpersonal traits, attitudes and behavior, i.e., agency (or social dominance) and communion (or nurturance or affiliation) and that these dimensions provide the conceptual coordinates to define and understand both normal and disrupted development (Benjamin, 2005; Kiesler, 1996; Leary, 1957; Pincus, 2005; Wiggins, 1991, 2003). As Fig. 2 demonstrates, these two dimensions can be arranged in a circumplex model. Conceptually, agency is clearly related to the self-definition/autonomous dimension proposed by Blatt and Beck, whereas the communion dimension is congruent with the relatedness/sociotropic dimension. Moreover, like Blatt and Beck, interpersonal models assume that normal personality development involves a balance between these two dimensions (Pincus, 2005; Wiggins, 2003).

Empirical studies provide strong support for these hypothesized relationships between Blatt's and Beck's views and contemporary interpersonal models. In particular, studies have shown that anaclitic/sociotropic individuals fall into the submissive quadrant, evidencing high levels of dependency and low levels of dominance, whereas introjective/autonomous individuals show the opposite pattern, falling into the cold and vindictive quadrant (e.g., Hmel & Pincus, 2002; Pincus, 2005; Pincus & Wilson, 2001; Ravitz et al., 2008). These findings have been replicated across a number of populations (e.g., students and community adults), using different assessment strategies (Blatt & Luyten, in press; Kwon, Campbell, & Williams, 2001). Moreover, Pincus and Gurtman (1995) and Pincus and Wilson (2001) found that different measures of relatedness fell into different parts of the Friendly-Submissive quadrant of the interpersonal circumplex, reflecting a variety of expressions of dependency needs ranging from low to average dominance to average to high nurturance. Similarly, Hmel and Pincus (2002) found that different measures of autonomy, as operationalizations of self-definitional issues, were located in the hostile-submissive, hostile-dominant and friendly-dominant quadrants

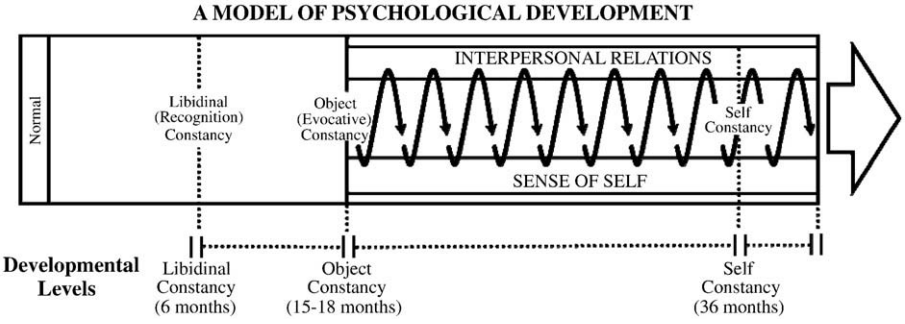

Fig. 1. A dialectic model of personality development. (Reprinted with permission from University of Rochester Press — permission to reprint has been asked, awaiting response).

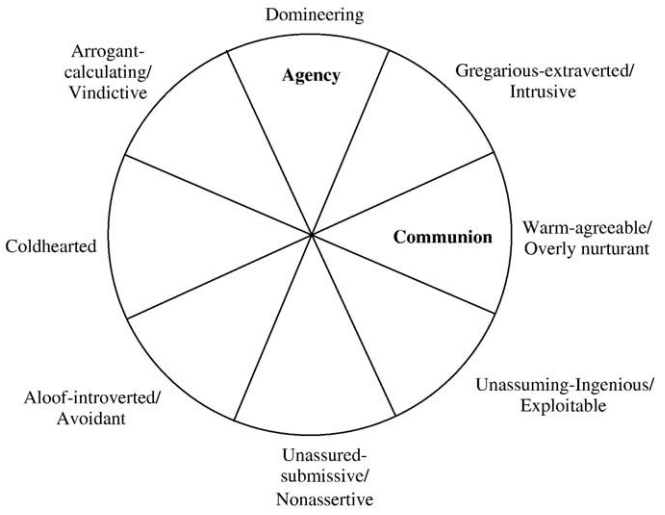

Fig. 2. The interpersonal circumplex.

of the interpersonal circumplex. Thus, these studies not only show the empirical convergence between both approaches, but also how these two approaches can enrich each other by further clarifying the extent to which extant measures assess different types (i.e., more adaptive versus maladaptive) and developmental levels of relatedness and self-definition (see also below) (Gurtman, in press).

3.2.4. Attachment theory

Emphasis on relatedness and self-definition as two central axes in human development is also congruent with contemporary attachment theory. Studies using interview-based and questionnaire-based approaches with clinical and nonclinical samples suggest that two dimensions underlie attachment styles — attachment avoidance and attachment anxiety (Meyer & Pilkonis, 2005; Mikulincer & Shaver, 2007; Roisman et al., 2007) (see Fig. 3). The attachment avoidance dimension, defined in terms of "discomfort with closeness and with discomfort depending on others" (Mikulincer & Shaver, 2007, p. 87), is conceptually related to the self-definition/autonomy/dominance dimension. Attachment anxiety, in contrast, defined in terms of "fear of rejection and abandonment" (Mikulincer & Shaver, 2007, p.91), is conceptually related to the relatedness/sociotropy/warmth dimension. The avoidance and anxiety dimensions yields four quadrants that represent four different attachment categories (a) secure, (b) preoccupied, (c) fearful-avoidant, and (d) dismissive attachment (Bartholomew & Horowitz, 1991) (see Fig. 3). Moreover, consistent with the emphasis on impairments in the representations of self and others in other two polarities models, attachment anxiety and avoidance are associated

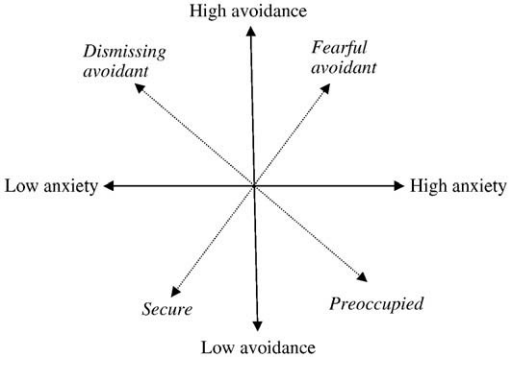

Fig. 3. Two-dimensional space defined by attachment anxiety and avoidance (Based on Mikulincer & Shaver, 2007; Bartholomew & Horowitz, 1991).

with differences in internal working models of self and of other (Bartholomew & Horowitz, 1991).

Like other two polarities models, contemporary attachment formulations emphasize that adaptive personality functioning involves a balance between relatedness and self-definition expressed in low to moderate levels of attachment anxiety and avoidance typical of secure attachment (Mikulincer & Shaver, 2007). Maladaptive personality functioning, in contrast, typical of insecure attachment, results from an overemphasis of relatedness/attachment anxiety or self-definition/attachment avoidance or both: "Attachment-anxious people overemphasize the need for protection and intimacy, and avoidant people overemphasize the need the need for autonomy and interpersonal distance" (Mikulincer & Shaver, 2007, p. 254), whereas "secure people do not view closeness and autonomy as antagonistic goals. (…) Secure individuals can flexibly move along the closeness-distance dimension of the circumplex without being afraid of losing autonomy or a partner's love. In contrast, insecurely attached people are less able to balance or coordinate closeness and autonomy" (Mikulincer & Shaver, 2007, p. 255).

A broad range of independent research programs provides strong empirical support for the relationships between the attachment avoidance and anxiety dimensions and relatedness and self-definition dimensions as emphasized by Blatt, Beck, and contemporary interpersonal models. Sibley (2007), for instance, has provided a conceptual and empirical integration of Blatt's and Beck's models with attachment theory in showing that introjective/autonomous traits are related to attachment avoidance, while anaclitic/sociotropic traits are most closely related to attachment anxiety. For instance, based on a meta-analysis of existing studies, Sibley (2007) found moderate to strong correlations ($r = .51$ and $r = .42$) between autonomy and attachment avoidance and sociotropy and attachment anxiety respectively, and low to zero correlations between the opposite pairs of these constructs (e.g., between sociotropy and attachment avoidance).

Moreover, studies suggest that more maladaptive levels of relatedness and self-definition are expressed in different combinations of attachment anxiety and avoidance in preoccupied, fearful-avoidant and dismissive attachment styles (Luyten et al., 2005). More maladaptive expressions of relatedness and self-definition are more closely related to the 45° rotated dimensions of anxiety and avoidance, reflecting secure versus fearful-avoidant and preoccupied versus dismissive tendencies. For instance, Zuroff and Fitzpatrick (1995) and Murphy and Bates (1997) found that anaclitic/sociotropic traits fell into the preoccupied attachment quadrant, characterized by a combination of a desire for love, but also fear for loss of love. Maladaptive expressions of introjective traits, in turn, fell into the fearful-avoidant attachment quadrant, and thus are characterized by a desire for approval, together with a fear of dependency and closeness, and dissatisfaction with and distrust of others (for a review, see Luyten et al., 2005). Thus, highly introjective individuals show an approach-avoidance conflict in relationships, matching most closely a combination of attachment anxiety and avoidance (Mikulincer & Shaver, 2007). Beck's (1983) autonomy concept, however, was situated somewhat nearer the dismissive quadrant compared to Blatt's introjective personality dimension, consistent with Beck's description of autonomy as characterized by the (defensive) avoidance of relationships and strong needs for independence, solitude, and control (Beck, 1983) resulting in a defensive separation from others (Clark, Steer, Beck, & Ross, 1995). Moreover, as discussed in more detail below, in a series of studies, Sibley and colleagues have convincingly demonstrated that measures of autonomy/sociotropy assess broad cognitive-affective schemas with regard to relatedness and self-definition, while attachment avoidance and anxiety assess the expression of these tendencies more specifically in close and romantic relationships (Sibley, 2007, Sibley & Overall, 2007, 2008, 2010). These findings again illustrate how these different two polarities models may further enlighten and enrich each other.

Finally, attachment dimensions of avoidance and anxiety have also been related in theoretically consistent ways to interpersonal models across both clinical and nonclinical samples (for a review, see Mikulincer & Shaver, 2007). Attachment avoidance, congruent with theoretical expectations, has been related to low nurturance (e.g., being cold, dominant and vindictive) in close relationships, while attachment anxiety has been related to being overly expressive in close relationships (Bartholomew & Horowitz, 1991; Haggerty, Hilsenroth, & Vala-Stewart, 2009).

3.2.5. Self-determination theory

The formulations of Deci and Ryan (2000; Ryan et al., 2006) concerning the nature of intrinsic motivation from the perspective of self-determination theory lead to similar conclusions. In particular, Deci and Ryan (e.g., 1991), congruent with other two polarities models, view intrinsic or autonomous motivation, as opposed to controlled motivation, as involving autonomy and competence on the one hand and relatedness on the other. Autonomy and competence refer to strivings to control the initiation and outcome of one's activities, while relatedness describes the need to feel related to others and that others are authentically related to the self. Though Deci and Ryan primarily focus on the underlying motivations of the needs for autonomy/competence and relatedness, their views are congruent with the other theoretical models discussed above in their emphasis on autonomy and relatedness as central coordinates in human development (Shahar et al., 2003, 2006).

Taken together, these findings suggest that, although different theoretical labels are used in these various theories, there is remarkable theoretical as well as empirical overlap between these approaches. Moreover, emerging evidence indicates that these theories and the measures that have been developed within each of these different theoretical approaches assess aspects of the fundamental dimensions of relatedness and self-definition at different levels of abstraction, leading to a hierarchical organization of extant two polarities models and their respective measures depicted schematically in Fig. 4 (see Sibley, 2007; Sibley & Overall, 2010; Luyten & Blatt, submitted for publication). Elsewhere, we have proposed, for reasons of theoretical clarity and parsimony, to use the notions of *relatedness* and *self-definition* to denote, on a theoretical level, these two fundamental dimensions in personality organization and development (Luyten & Blatt, submitted for publication) (see Fig. 4). Next, in terms of the operationalization of these constructs, we have proposed, in line with Sibley and Overall (2007, 2008, 2010), to distinguish a number of *broad bandwidth* measures that tap broad personality features or cognitive-affective schemas with regard to relatedness and self-definition, as well as measures assessing *motivational structures or goals* associated with these broad personality dimensions. On the next level, more *narrow-bandwidth measures* appear to assess more domain- and relationships-specific expressions of relatedness and self-definition, and the representations of self and other underlying these more context-specific tendencies (see Fig. 4, see also Locke, in press; Pincus, 2005; Pincus & Wilson, 2001; Sibley & Overall, 2007, 2010; for a detailed review, see Luyten & Blatt, submitted for publication). Although these distinctions between the different levels are somewhat arbitrary and open to empirical scrutiny, they nevertheless further clarify the relationship between these different theoretical approaches and their respective assessment approaches.

3.3. Two polarities in psychopathology

As noted, two polarities models furthermore provide a powerful theoretical model of psychopathology that suggests that many Axis I and Axis II disorders (a) can be localized in a two-dimensional space defined by relatedness and self-definition, and (b) can be organized in two clusters or configurations of psychopathology, based on the view that different forms of psychopathology involve *exaggerated distortions of one developmental line to the neglect of the other as a result of compensatory or defensive maneuvers in response to developmental disruptions* (Beck, 1983; Blatt, 2008; Blatt & Shichman, 1983; Meyer & Pilkonis, 2005; Mikulincer & Shaver, 2007; Pincus, 2005). Hence, these formulations emphasize that different forms of psychopathology are

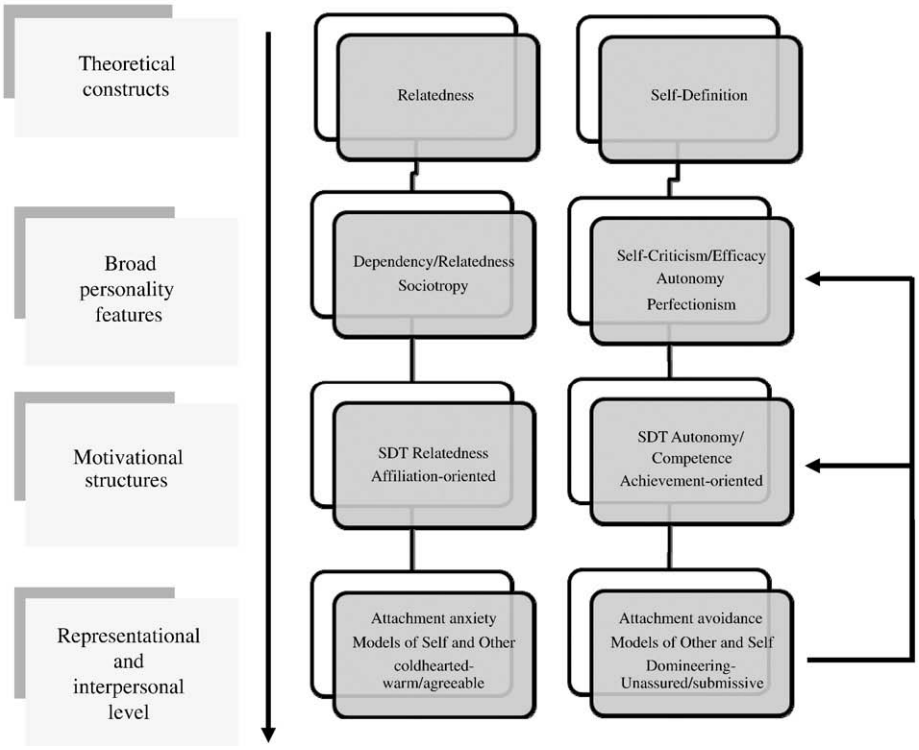

Fig. 4. Hierarchical organization of expressions of relatedness and self-definition (Based on Sibley, 2007; Luyten & Blatt, submitted for publication).

not static entities resulting from developmental deficits, but *dynamic, conflict-defense constellations that attempt to maintain a balance, however disturbed, between relatedness and self-definition*.

These views also assume that disorders within these two configurations are inter-related. In particular, Blatt (Blatt, 2008, Blatt & Shichman, 1983) has argued that different types of psychopathology in both Axis I and II of the DSM are exaggerated and distorted preoccupations, at different developmental levels, with one or the other of the two fundamental personality dimensions of interpersonal relatedness and self-definition. In this view, *anaclitic psychopathology* is primarily characterized by distorted and exaggerated attempts, at different developmental levels, to maintain satisfying interpersonal experiences at the expense of self-definition, and thus primarily reflects an exaggerated or distorted focus on relatedness issues. *Introjective psychopathology*, in contrast, reflects distorted attempts to establish and maintain a sense of self at the expense of interpersonal relatedness, at different developmental levels, and thus primarily reflects exaggerated or distorted preoccupations with issues regarding autonomy, control, self-worth and identity. In addition, regression and progression across developmental levels on each of these developmental lines are possible, which may in part explain high comorbidity and causal relationships between different disorders in the two configurations of psychopathology (Beck, 1983; Blatt, 2008; Blatt & Shichman, 1983).

The value of these distinctions in conceptualizing psychopathology has been extensively demonstrated (see reviews in Blatt, 2004; 2008; Blatt & Luyten, 2009, 2010; Clark & Beck, 1999). For instance, differentiation of relatedness and of self-definition as two fundamental psychological dimensions has enabled investigators from different theoretical orientations to identify two fundamental dimensions in depression — an anaclitic/sociotropic dimension centered on feelings of loneliness, abandonment, and neglect and an introjective/autonomous dimension focused on issues of self-worth and feelings of failure and guilt. Extensive empirical investigations (for reviews, see Besser, Vliegen, Luyten, & Blatt, 2008; Blatt, 2004; Blatt & Zuroff, 1992; Clark & Beck, 1999; Luyten et al., 2005; Zuroff, Mongrain, & Santor, 2004) indicate consistent differences in the current and early life experiences of these two types of depressed individuals (Blatt & Homann, 1992) as well as major differences in their basic character style, their relational and attachment style (Luyten, Corveleyn, & Blatt, 2005), their clinical expression of depression (Blatt, 2004; Blatt & Zuroff, 2005) and in their therapeutic response (Blatt & Zuroff, 2005; Blatt, Zuroff, Hawley, & Auerbach, 2010).

This distinction has also enabled investigators to identify and replicate a taxonomy for the diverse personality disorders described in Axis II of the DSM. Systematic empirical investigation of both inpatients and outpatients, using different assessment procedures, have found that various Axis II personality disorders are meaningfully, in theoretically expected ways, organized into two primary configurations — one organized around issues of relatedness and the other around issues of self-definition (Blatt & Luyten, 2010; Horowitz et al., 2006; Meyer & Pilkonis, 2005). Congruent with two polarities models, studies have generally found that individuals with dependent, histrionic or borderline personality disorder have significantly greater concern with issues of interpersonal relatedness than with issues of self-definition, while individuals with a paranoid, schizoid, schizotypic, antisocial, narcissistic, avoidant, obsessive–compulsive and self-defeating personality disorder usually have significantly greater preoccupation with issues of self-definition than with issues of interpersonal relatedness.

Contemporary attachment research has further extended the view that different forms of psychopathology are dynamic conflict-defense constellations that reflect different attempts to find a balance between relatedness and self-definition, and have moreover shown that these very processes are also central issues in normal individuals (Mikulincer & Shaver, 2007; Sibley, 2007). According to contemporary attachment formulations, secondary attachment strategies can be seen as attempts to cope with the unavailability, either imagined or real, of secure attachment figures. More specifically, studies have provided evidence that the perceived unavailability of secure attachment figures in insecurely attached individuals leads to either deactivation or hyperactivation attachment strategies, or a combination of both (Dozier & Kobak, 1992; Mikulincer & Shaver, 2007; Roisman, 2007). The deactivating strategy is typically observed in individuals with avoidant attachment, the hyperactivating strategy is typical in individuals with anxious attachment. Hyperactivating strategies lead to often frantic efforts to find support and relief, expressed in demanding, clinging and claiming behavior. Because of their apprehension that others will not provide this longed for support and care, coupled with their demanding style, individuals using hyperactivating strategies are often only temporarily able to effectively regulate distress. Individuals using attachment deactivation strategies, in contrast, tend to regulate distress by denying attachment needs, asserting their autonomy, independence and strength to avoid further distress. Although attachment hyperactivating and deactivating strategies often temporarily succeed in effectively regulating distress, in the long-run they result in feelings of isolation from others (Mikulincer & Shaver, 2007) and increased vulnerability. In addition, studies have shown that under increasing levels of stress, these deactivating strategies tend to fail, leading to a strong reactivation of feelings of insecurity, heightened reactivation of negative self-representations, and thus increased levels of stress (Mikulincer & Shaver, 2007). Hence, like hyperactivating strategies, deactivation strategies may have short-term adaptive consequences, but in the long-run may be maladaptive for both physical and mental health (Hill-Soderlund et al., 2008; Luyten, Mayes, Fonagy, & Van Houdenhove, submitted for publication).

In sum, a key feature of two polarities models is their emphasis on the importance of the *dynamics* and *motivational factors* involved in psychopathology — that various disorders reflect different attempts to establish a balance, however distorted, between relatedness and self-definition, and thus that different forms of psychopathology are not static end states, but dynamic conflict-defense constellations.

3.4. The neurobiological and evolutionary basis of two polarities models

Recent studies have begun to explore the genetic, physiological, neurobiological and neural correlates, as well as evolutionary underpinnings of relatedness and self-definition. As for relatedness, studies on the neurobiology of attachment, and its role in regulating affect and stress, are playing a key role in understanding the centrality of these two dimensions of psychological development (Gunnar & Quevedo, 2007; Luyten et al., submitted for publication). Both animal (Carter, Grippo, Pournajafi-Nazarloo, Ruscio, & Porges, 2008; Neumann, 2008) and human (Gordon et al., 2008; Heinrichs & Domes, 2008; Levine, Zagoory-Sharon, Feldman, & Weller, 2007) research demonstrates that the neuropeptides oxytocin and vasopressin play a central role in the neural systems underlying attachment relationships such as the amygdala and the hypothalamic paraventricular nucleus (Insel & Young, 2001; Neumann, 2008). In particular, oxytocin is not only involved in affiliative behavior such as pair bonding, maternal care, and sexual behavior, but is also involved in social memory and social support (Feldman, Weller, Zagoory-Sharon, & Levine, 2007; Levine et al., 2007), and in the reduction of behavioral and neuroendocrinological responses to (social) stress (Neumann, 2008). Both oxytocin and vasopressin are involved in affiliative behavior, and have anxiolytic and anti-stress effects by directly acting upon the Hypothalamic Pituitary Adrenal (HPA) axis system and indirectly by enhancing social cognition and trust in particular (Donaldson & Young, 2008).

Together, these findings suggest that the attachment system is an evolutionary developed system that is closely associated with the reward system in the brain which reinforces affiliative behavior, and is also closely associated with stress regulation and increased trust in

others. The attachment system is also associated with the capacity for meta-cognition and mentalization, leading to "broaden and build" (Fredrickson, 2001; Garland et al., in press) cycles associated with attachment security (Fonagy & Luyten, 2009; Mikulincer & Shaver, 2007). Moreover, congruent with the proposed "broaden and build" effects associated with secure attachment strategies, oxytocin is involved in fostering positive feelings and explorative behavior (Insel & Young, 2001; Neumann, 2008), linking experiences of relatedness to opportunities to develop feelings of autonomy, competence, and identity, as expressed in better affect regulation, use of more adaptive coping strategies, and higher levels of effortful control (Fonagy & Luyten, 2009; Fredrickson, 2001; Garland et al., in press; Mikulincer & Shaver, 2007).

Similarly, with regard to self-definition, research has focused over the last decade on the neural circuits involved in feelings of self and identity. These studies have highlighted the role of cortical midline structures, including the medial prefrontal cortex, posterior cingulate, precuneus, and the temporal parietal junction across a variety of tasks and domains (e.g., emotional, motor, verbal, spatial, facial) (e.g., Dimaggio, Lysaker, Carcione, Nicolo, & Semerari, 2008; Lieberman, 2007; Lombardo, Barnes, Wheelwright, & Baron-Cohen, 2007; Lombardo et al., in press; Uddin, Iacoboni, Lange, & Keenan, 2007; for a meta-analysis, see Northoff et al., 2006). Importantly, these brain areas have also been implicated in social cognition with regard to others, and theory of mind and mentalization more specifically (Fonagy & Luyten, 2009; Lieberman, 2007; Uddin et al., 2007). Hence, congruent with the emphasis in two polarities models on the dialectic interaction between issues of relatedness and self-definition, and thus the intertwining of the development of a sense of self and other, these studies have found a marked overlap between areas involved in self-reflection and social cognition with regard to others. One recent study, for instance, found that individuals recruit the same neural network for both mother-referential and self-referential processing, indicating a strongly integrated network for the two (Vanderwal, Hunyadi, Grupe, Connors, & Schultz, 2009), a finding which is strikingly consistent with the suggestion that the development of a sense of self and others are closely intertwined.

Findings such as these promise to increase our understanding of the evolutionary and biological bases of the developmental dialectic interaction of relatedness and self-definition, and the pathophysiology underlying impairments in the integration of these two central developmental processes in psychiatric disorders. One important implication of this view, discussed in more detail below, may be that future research should move beyond the unfruitful search for the relatively unique etiology and pathogenesis of specific psychiatric disorders (Blatt & Luyten, 2010). Congruent with principles of equifinality and multifinality, these findings suggest that it may be more effective to investigate how broad biological factors and systems, such as broader neural systems or circuits underlying the capacity for relatedness and self-definition, are implicated in both the development and treatment of spectra of disorders (Cicchetti & Rogosch, 1996; Luyten, Vliegen, Van Houdenhove, & Blatt, 2008).

4. Integrating theory-driven and empirically-derived approaches to personality

4.1. Introduction

Just like with theory-driven models, there is a growing consensus among currently dominant empirically-derived models of personality suggesting that, depending on the level of abstraction, 4 to 7 major personality dimensions underlie both normal and pathological personality development (i.e. negative emotionality or neuroticism, positive emotionality or extraversion, conscientiousness, agreeableness, openness to experience, and possibly compulsiveness and schizotypy) (De Clercq, De Fruyt, Van Leeuwen, & Mervielde, 2006; Hudziak, Achenbach, Althoff, & Pine, 2007; Krueger et al., 2007; Saulsman & Page, 2004; Watson, Clark, & Chmielewski, 2008). Moreover, increasing evidence indicates that these dimensions are relatively stable from infancy to adulthood, and are hierarchically organized in terms of an internalizing versus externalizing spectrum (De Clercq et al., 2006; Krueger, Markon, Patrick, & Iacono, 2005; Krueger, Watson, & Barlow, 2005; Krueger, et al., 2007).

In this section, we examine the conceptual and empirical relationships as well as complementarities between theory-driven two polarities models discussed above and prominent empirically-derived models representative of (a) the child/adolescent and adult literature (e.g., the I/E model, the tripartite model), (b) purely empirical versus mixed models (e.g., the I/E model versus the FFM model), and (c) models derived from the study of normal versus abnormal personality development (e.g., the FFM versus Livesley's DAPP-BQ model). This examination forms the basis for our integration of theory-driven and empirically-derived models of personality in an overarching hierarchically organized dimensional model of psychopathology.

4.2. The internalizing vs. externalizing spectrum model

The I/E spectrum model, derived from Achenbach's seminal contributions (Achenbach et al., 2005), is one of the most influential models in the development of future classification systems, particularly for childhood and adolescent disorders (De Clercq et al., 2006; Hudziak et al., 2007). This appealing empirically-derived model has many advantages over the current DSM approach (Krueger, Markon, et al., 2005; Krueger, Watson, et al., 2005, 2007) as well as many similarities with two polarities models: (a) congruent with two polarities models, the I/E model provides ample evidence that many psychiatric disorders are interrelated, rather than isolated, disorders (Krueger et al., 2007) and (b), the I/E model has sought to explain these interrelationships among disorders by referring to genetic, environmental and especially personality factors (Krueger et al., 2007). Hence, like two polarities models, the I/E model emphasizes continuity between normal and disrupted personality development, transcending the putative distinctions between Axis I and II disorders and between symptoms and personality (Krueger et al., 2007). Studies based on the I/E model, for example, provide clear evidence that externalizing disorders such as antisocial behavior, substance and drug abuse are not only highly comorbid, but are related to similar personality factors such as impulsive and aggressive personality traits (Krueger et al., 2007). Likewise, internalizing disorders, specifically Generalized Anxiety Disorder (GAD) and Major Depressive Disorder (MDD) are not only highly comorbid, but have been linked to neuroticism and high levels of rumination (Kramer, Krueger, & Hicks, 2008). In addition, the I/E model is increasingly providing evidence that the structure of psychopathology is similar in children, adolescents, and adults, thus introducing a developmental perspective in psychiatric classification (De Clercq et al., 2006). Moreover, the I/E has clinical appeal, and has been used to define different intervention and treatment approaches for internalizing and externalizing disorders (e.g., Fonagy, Moran, Edgcumbe, Kennedy, & Target, 1993; Park-Higgerson, Perumean-Chaney, Bartolucci, Grimley, & Singh, 2008). Finally, the I/E model may also clarify findings concerning gender differences in vulnerability for internalizing versus externalizing disorders (Kramer et al., 2008).

The I/E model, however, also has a number of limitations. One of the most vexing problems of the I/E model is the high co-occurrence (comorbidity) of internalizing and externalizing disorders (Krueger, Markon, et al., 2005; Krueger, Watson, et al., 2005, 2007; Lahey et al., 2008; McGlinchey & Zimmerman, 2007). For instance, in a recent twin study, correlations between internalizing and externalizing disorders as great as $r = .54$ were found in monozygotic twins and $r = .41$ in dizogytic twins as measured with the Childhood Behavior Checklist (Pesenti-Gritti et al., 2008). Lahey et al. (2008), similarly, in a large representative

sample of 4,049 children, found very high correlations between internalizing and externalizing disorders. For instance, caretaker reported MDD/GAD correlated $r = .47$ through $r = .70$ with other internalizing disorders, but also $r = .56$ to $r = .67$ with externalizing disorders. Moreover, studies have shown that childhood Oppositional Defiant Disorder (ODD) and Conduct Disorder (CD), both externalizing disorders, predict adolescent MDD, an internalizing disorder, and that year-to-year fluctuations in levels of CD symptoms paralleled fluctuations in MDD symptoms across childhood and adolescence (Lahey, Loeber, Burke, Rathouz, & McBurnett, 2002). Furthermore, studies suggest that this comorbidity is largely determined by genetic and common, not unique, environmental factors (Hudziak et al., 2007).

It is important to note that these findings do not call into question the validity of the I/E distinction as such, but question the traditional understanding of this distinction and suggest "the need to reconceptualize the nature of these higher-order dimensions" (Lahey et al., 2008, p. 187). In fact, the high correlations among internalizing and externalizing disorders may in part reflect a general psychopathology factor. Moreover, it could be argued that the high co-occurrence between internalizing and externalizing disorders is even less problematic because it probably reflects true covariance among internalizing and externalizing disorders. The main problem of the I/E distinction, therefore, appears to be related to its descriptive, and largely symptom-based approach that leads to similar problems (e.g., extensive comorbidity) experienced with the current symptom-based DSM approach.

Indeed, while findings concerning high comorbidity are difficult to accommodate within the I/E model, it is a central assumption of two polarities models of personality development that developmental impairments or conflicts around relatedness and self-definition can be expressed in both internalizing and externalizing form, depending upon other (dynamic) factors. Studies provide evidence, for instance, that antisocial (externalizing) behaviors are often a defense against underlying (internalizing) feelings of depression and hence can be expected to show substantial comorbidity (Blatt, 2004; Blatt & Shichman, 1981). More generally, it is well-known that "the expression of psychopathology in children often changes in both magnitude and character as development progresses" (Hudziak et al., 2007, p. 17). Hence, the same issues with relatedness and self-definition may be expressed in different ways at different ages and in different contexts, a phenomenon consistent with the developmental principles of equifinality and multifinality (Cicchetti & Rogosch, 1996). Congruent with these principles, research has shown that introjective personality dimensions, for instance, are related to both internalizing and externalizing disorders both cross-sectionally (Leadbeater & Linares, 1992) as well as longitudinally (Leadbeater, Kuperminc, Blatt, & Hertzog, 1999). These findings are also congruent with studies showing that disorders of the internalizing spectrum are linked to temperament and personality factors such as aggression, impulsivity, low effortful control and disinhibition (Krueger et al., 2007) which are also involved in externalizing disorders, and in introjective disorders in particular (Blatt & Luyten, 2009). Thus, depending on the way aggression is dealt with in terms of secondary attachment or coping strategies, it can be internalized (defining an internalizing hostile/aggressive subtype of depression; Luyten et al., 2007), or externalized (leading to externalizing disorders; Leadbeater et al., 1999).

These findings suggest that any classification system that is exclusively based on symptomatic expressions may lead to comparable problems experienced with the current DSM approach, and that a superordinate theory-driven approach may avoid these problems by providing a fuller articulation of the dynamic and motivational factors inherent in internalizing and externalizing behavior patterns.

4.3. The five factor model

The FFM has gained much popularity over recent decades in the search for a more productive classification of psychopathology (De Clercq et al., 2006; Widiger & Trull, 2007). The FFM, a mixed empirically-derived and theory-driven model (Costa & McCrae, in press; McCrae & Costa, 1999), is based on the multivariate study of traits in normal community samples. Researchers subsequently developed a comprehensive personality theory based on studies of the cross-cultural, genetic, and developmental antecedents as well as the stability of these traits across development. These studies converge on a five factor model of personality, consisting of neuroticism, extraversion, agreeableness, openness and conscientiousness. The strengths of the FFM model are its foundation in multivariate research, its cross-cultural stability and its relation to genetic and biological bases of human behavior (Widiger & Trull, 2007). The clear and demonstrable relationship of the FFM model to other empirically-derived models of personality, including the I/E model (De Clercq et al., 2006), and temperament models (Clark, 2005; De Clercq et al., 2006), has further increased its appeal.

The FFM also has theoretically consistent relationships with two polarities models. Studies, for example, have found that Blatt's and Beck's dimensions of Dependency/Sociotropy can be described as an extravert, agreeable form of neuroticism, while Self-Criticism/Autonomy reflects a more introverted, disagreeable neurotic personality style (e.g., Bagby & Rector, 1998; Dunkley, Blankstein, & Flett, 1997; Dunkley, Sanislow, Grilo, & McGlashan, 2006; Enns & Cox, 1999; Mongrain, 1993; Moore & Blackburn, 1996; Zuroff, 1994). Studies have also shown that Dependency/Sociotropy and Self-Criticism/Autonomy cannot be simply reduced to the FFM (Cox, McWilliams, Enns, & Clara, 2004). For instance, Dependency/Sociotropy and Self-Criticism/Autonomy predict severity of depression in both clinical and nonclinical samples even after controlling for the FFM personality dimensions (Clara, Cox, & Enns, 2003; Clark & Beck, 1991; Dunkley et al., 1997; Enns & Cox, 1999).

Likewise, studies have reported theoretically consistent relationships between attachment styles and the FFM (for a review, see Mikulincer & Shaver, 2007). Attachment avoidance has been consistently associated with low scores on extraversion and agreeableness, findings congruent with research on the relationship of self-criticism/autonomy with the FFM. Findings concerning attachment anxiety are somewhat more mixed, and suggest potential differences between the FFM and an attachment perspective (e.g., see Noftle & Shaver, 2006). Despite such inconsistency, a recent behavioral-genetic study suggests that much of the overlap between adult attachment and the FFM traits is due to shared genetic influences (Donellan, Burt, Levendosky, & Klump, 2008). Finally, research from the perspective of interpersonal theory has shown that, as expected, extraversion is related to the friendly/dominant quadrant and agreeableness to the friendly submissive quadrant (McCrae & Costa, 1990) in the interpersonal circumplex, which has led to an interpersonal model of the FFM (Wiggins, 1991).

In sum, the FFM is clearly related to both empirically-derived and theory-driven models of personality development and classification. In this context, it has been suggested that the Big Five factors constitute higher-order factors for the lower order personality factors of relatedness and self-definition (e.g., Cox et al., 2004). It even has been suggested that two polarities models only assess two dimensions of the FFM model (i.e., extraversion and agreeableness), and thus the FFM is a more encompassing, higher-order model. However, research findings seem rather to support the opposite view, namely that two polarities models may provide the higher-order structure for the more basic personality factors of the FFM. The reason for this view is first and foremost that the FFM factors are so closely related to temperament factors that they are better construed as basic temperament factors that constitute the fundamental building blocks of personality rather than as personality factors per se. In particular, the high genetic load and high temporal stability of the FFM factors across the life span as well as the similarity between the factor structure of current models of temperament and the FFM factors

strongly support such a re-conceptualization (Caspi, Roberts, & Shiner, 2005; De Pauw, Mervielde, & Van Leeuwen, 2009; Rothbart & Bates, 2006). Indeed, given the overlap with temperament, it has been argued that temperament and the FFM personality factors are "more alike than different" (Caspi et al., 2005, p. 454). Second, as with the I/E model, a major limitation of the FFM in conceptualizing psychopathology is the assumption, as in most trait models, that individuals are either high or low on a particular trait, but not both. Yet, most psychiatric disorders, and personality disorders in particular, seem to be characterized by such apparent "contradictions" which in fact may be a key defining feature of psychopathology. For example, empirical studies from a variety of perspectives, using a variety of assessment methods ranging from clinician-report to experimental studies, have shown that patients with narcissistic personality disorder typically present with high self-esteem as a defense against underlying feelings of inferiority and emptiness (Russ, Shedler, Bradley, & Westen, 2008). Hence, these individuals appear to simultaneously have "high" and "low" levels of self-esteem, which is difficult to explain in a trait model that views traits as relatively stable dimensions. Similarly, many patients with dependent personality features show very low scores on manifest indicators of aggression (i.e., on self-report measures), but on a more latent level harbor strong aggressive feelings, which are only indirectly manifested (e.g., in passive–aggressiveness) (Bornstein, 1992). Borderline patients, in turn, show strong fluctuations in levels of aggression (i.e., both high and low scores) as a result of the tendency to both idealize and denigrate significant others because of their inability to tolerate ambivalent feelings (Fonagy & Luyten, 2009). Likewise, studies have shown that individuals with avoidant personality disorder simultaneously desire as well as fear intimacy (Meyer & Pilkonis, 2005; Mikulincer & Shaver, 2007). Thus, as with the I/E model, there is a clear need for a functional and dynamic perspective in conceptualizing psychopathology; that is, consideration of the *functional and motivational aspects* of specific traits and behaviors (i.e., as attempts to defend against or cope with problematic issues) leading to the view of personality traits and psychopathological disorders as *dynamic conflict-defense constellations*, rather than as static entities.

These findings have important implications for conceptualization of normal as well as disrupted personality and psychiatric classification. Concerning Axis I disorders, studies clearly suggest for instance that atypical depression is best defined in terms of an underlying dependent personality style, while its purported defining symptoms (i.e., hyperphagia and hypersomnia) are better seen as *coping strategies* aimed at restoring homeostasis (Parker, 2007). Concerning normal development, attachment anxiety, for instance, has been shown to involve simultaneously both strong positive as well negative attitudes towards parents and romantic partners (Bar-On, 2005; Maio, Fincham, & Lycett, 2000). Findings such as these clearly point to the importance of considering the *dynamics* involved in normal and pathological personality development, an issue to which we will return in more detail below.

A final limitation of the FFM and other similar trait models is that the FFM has its origin in descriptions of individuals in non clinical samples and thus may be biased towards understanding normal personality functioning, resulting in limitations in understanding psychopathology (McAdams, 1992; Shedler & Westen, 2004). This may also explain the low perceived clinical utility of the FFM. For instance, though the FFM model is among the models that have received most empirical attention in the context of future classification systems of psychopathology, a large random sample of psychiatrists and psychologists rated the FFM as having the least clinical utility and clinical relevance of five dimensional models proposed for future editions of the DSM (Spitzer et al., 2008). Similar findings have recently been reported by Rottman, Ahn, Sanislow, and Kim (2009), who found that clinicians made fewer correct diagnoses based on FFM descriptions of personality disordered patients compared to when they were given similar descriptions based on other diagnostic systems.

4.4. Clark and Watson's Tripartite Model and Livesley's Dimensional Personality Model

Whereas the FFM is primarily based on the study of normal personality traits, other empirically-derived approaches are based mainly on studies of *abnormal* personality functioning. Two of the most researched and well-known of these models are the tripartite model (Clark, 2005; Watson, 2005) and Livesley's dimensional personality model (Livesley, 1998, 2008). These independently developed empirically-derived models, initially based on clinician's ratings of DSM and non-DSM personality disordered features, have led to hierarchically organized dimensional systems that, like two polarities models, emphasize the continuity between normal and pathological personality functioning and the view that the distinction between Axis I and Axis II is, to a large extent, artificial.

Clark and Watson developed the Schedule for Nonadaptive and Adaptive Personality (SNAP), which distinguishes between Negative Affect (NA), Positive Affect (PA) and Disinhibiton (D), and 22 lower level dimensions (Clark, 1993). Livesley (1990), in turn, developed the Dimensional Assessment of Personality Pathology-Basic Questionnaire (DAPP-BQ), which differentiates four dimensions, i.e., Emotional Instability, Dissocial Behavior, Inhibitedness, and Compulsivity, and 18 lower level scales. Both the tripartite and Livesley's model have been related to the FFM and the I/E model. Clark's PA, NA and D dimensions overlap empirically with the FFM neuroticism, extraversion, and conscientiousness factors respectively; and Livesley's DAPP-BQ factors of Emotional Instability, Dissocial Behavior, Inhibitedness and Compulsivity correspond with the FFM neuroticism, agreeableness, extraversion and conscientiousness, respectively (e.g., Markon, Krueger, & Watson, 2005; De Clercq et al., 2006). Moreover, growing evidence suggests that these three models (FFM, Tripartite and Livesley's model) have a similar structure from childhood through adolescence to adulthood that can be organized along the I/E spectrum (De Clercq et al., 2006), increasing their relevance for a developmentally-sensitive classification system of psychopathology.

Though the tripartite and Livesley models have many advantages, their disadvantages, like the FFM and other trait models, is that they are also relatively static and thus have difficulty explaining the dynamics involved in both normal and disrupted personality development. Moreover, the tripartite model has been criticized for its almost exclusive focus on depression and anxiety (Brown & Barlow, 2005).

Evidence, however, suggests that Clark's tripartite and Livesley's dimensional model are both conceptually and empirically related to two polarities models. For instance, studies have shown that Livesley's dimensions are related to the attachment dimensions of anxiety and avoidance (Crawford et al., 2007). Most studies, however, have focused on the relationship between the tripartite model and Blatt's and Beck's models, finding that Self-Criticism/Autonomy is positively related to negative affect and negatively related to positive affect with correlations typically around $r = |.30| - |.60|$, while Dependency/Sociotropy is positively related to negative affect, with correlations typically around $r = .30–.60$, and is not or slightly positively related to positive affect (see Blatt, 2004, 2008 for reviews). These findings suggest that the constant fear of rejection and abandonment may explain the propensity of anaclitic individuals for negative affect, while their strong desire for love and affection may be responsible for their also experiencing positive affect, particularly when these desires are (temporarily) fulfilled. Also, the tendency for hypomanic denial and idealization of anaclitic individuals (Blatt, 1974) may create the association with positive affect. Regardless of the explanation, anaclitic individuals "overall (...) may have the potential to experience

greater 'happiness' than others, at the expense of bouts of depression" (Mongrain & Zuroff, 1994, p.456).

Findings such as these suggest that the two polarities model could contribute to better understanding of the tripartite model. The tripartite model, in turn, may provide the basis for linking the two polarities model to basic temperament factors, providing a more differentiated view of the numerous temperament and lower order personality dimensions involved in the development of both relatedness and self-definition. The emphasis in two polarities models on individuals' struggle to achieve, at different developmental levels, an equilibrium between relatedness and self-definition, however, provides a more dynamic view of personality development and of psychopathology rather than static descriptions of combinations of traits.

5. Towards a hierarchical view of the development and nature of psychopathology: prototypes as an alternative to diagnostic categories

Based on the research reviewed, we propose that different forms of psychopathology can be situated within a hierarchical model that integrates theory-driven models that emphasize relatedness and self-definition as central coordinates in normal and disrupted personality development, with empirically-derived models of basic temperament and personality factors. Fig. 5 presents a schematic depiction of the proposed model. In the next sections, we outline the main properties of this model.

5.1. A circumplex model of personality development and psychopathology

The research reviewed so far indicates a growing consensus indicates that psychopathological disorders can be arranged in a two-dimensional space defined by: (a) *relatedness*, ranging from high to low anxiety or warmth in relationships and (b) *self-definition*, ranging from low to high avoidance of others (see right side of Fig. 5). As noted, these two personality dimensions can be best conceptualized in terms of a set of underlying cognitive-affective interpersonal schemas or internal working models of self and others, ranging from relatively broad schema's to more (relationship-)specific working models of self and others (see Fig. 4, see also Luyten & Blatt, submitted for publication; Sibley & Overall, 2007). These representations can be seen as part of complex connectionist networks that develop over the life span and that, at least in normal development, become increasingly complex, differentiated, and integrated (Blatt, Auerbach, & Levy, 1997; Fraley, 2007).

Congruent with both theory-driven and empirically-derived models, this view implies (a) that the distinction between DSM Axis I and II disorders is to a great extent arbitrary and counterproductive, (b) that it may be more productive to assume a fundamental continuity between normal personality features and psychopathology, and (c) that research concerning the etiopathogenesis of psychopathology should examine the developmental pathways from more basic genetic, temperament and personality dimensions, in interaction with environmental factors (see below), that lead to disrupted cognitive-affective schemas of self and others across the life span, at various levels of abstraction, rather than assuming that each disorder has a relatively unique etiopathogenesis, as (implicitly) assumed in the current DSM approach (Blatt & Luyten, 2009, 2010; Clark, 2005; De Clercq et al., 2006; Krueger et al., 2007; Livesley, 2008; Watson, 2005).

These features of the proposed two configurations model open up many research possibilities, particularly because the model represented in the right side of Fig. 5 possesses all the mathematical properties of the interpersonal circumplex (Gurtman, 1994, in press). This implies, for instance, that correlations between different disorders situated in this space on the circumplex are expected to decrease as one moves around the circumplex. In particular, assuming that these disorders are measured without error, the correlation between any two disorders can be calculated as the cosine of their angle of separation (Gurtman, 1994), which could lead to further understanding of the vexing problem of the high comorbidity of disorders in the current DSM system. Furthermore, the emphasis on cognitive-affective schemas or internal working models, or representations of self and others in this model, is congruent with the emphasis on these concepts in a wide variety of disciplines, ranging from cognitive science, cognitive-behavioral research, social and personality psychology, to developmental psychopathology research,

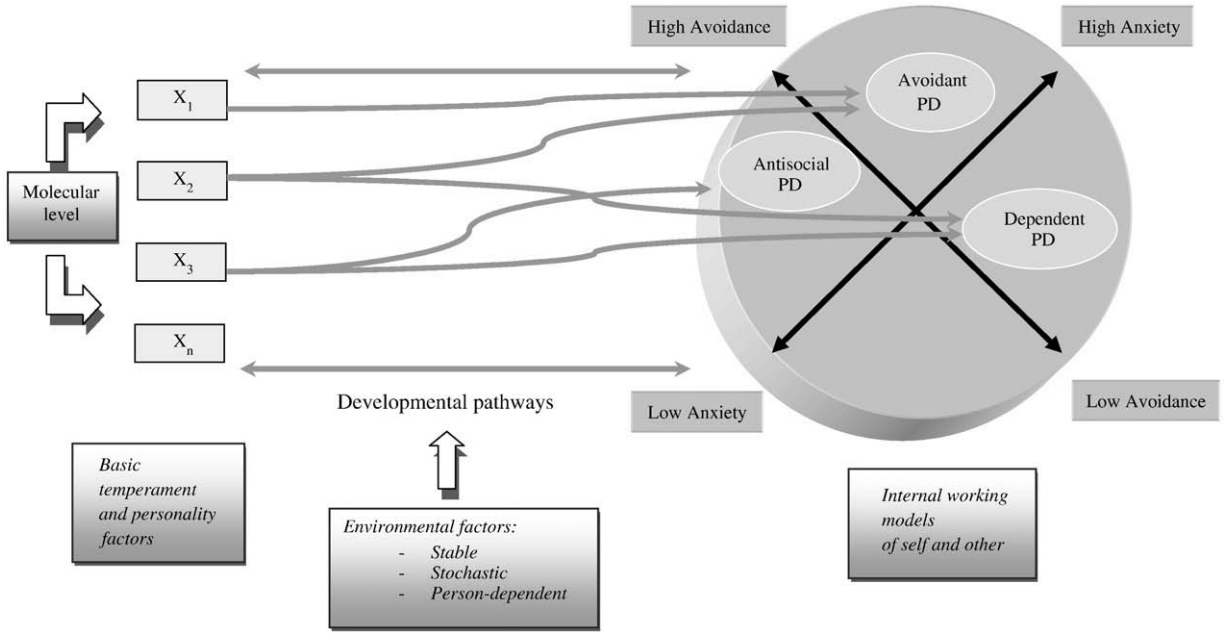

Fig. 5. A combined dimensional/prototype approach of normal and pathological personality development and psychiatric classification.

psychodynamic perspectives and neuroscience approaches, providing opportunities for research that transcends particular theoretical orientations (Blatt, Besser, & Ford, 2007; Lieberman, 2007). This view is also consistent with the recent proposal by the DSM-V Task Force on personality disorders, including impairments in representations of self and others as the basis for diagnoses of personality disorders (Skodol & Bender, 2009), but extends this approach to both Axis I and Axis II disorders. Moreover, as noted, a host of validated measures exist ranging from self-report questionnaires to interviews and observer-rated scales to assess expressions of relatedness and self-definition at various levels of abstraction (Locke, in press; Luyten & Blatt, submitted for publication; Sibley & Overall, 2007, 2010).

5.2. A prototype approach

The proposed model assumes that psychopathological disorders are best conceptualized as *prototypes* in a two-dimensional space, rather than as categorical disorders that are distinct from each other and from normality as in the current DSM, or as defined by arbitrary or empirically determined cut-off scores on several dimensions, as proposed by proponents of some dimensional models. Rather, different psychiatric disorders are defined, congruent with the need to include a dynamic and functional dimension in the classification of psychopathology, in terms of *prototypical conflict-defense constellations.* These prototypical constellations, however maladaptive, are attempts to establish and maintain a sense of interpersonal relatedness and self-definition at different developmental levels of organization, that have crystallized over time (Blatt & Luyten, 2010; Blatt & Shichman, 1983; McWilliams, 1994). Hence, individual patients may resemble to a greater or lesser extent, prototypical ways of dealing with issues of relatedness and self-definition, ranging from "normal" personality functioning, to subclinical psychopathology, to full-blown symptom and/or personality disorders.

This prototype approach has a number of advantages compared to the current DSM categorical approach or purely dimensional models. Studies clearly indicate that clinicians conceptualize disorders in terms of prototypes and therefore prefer prototypical classificatory systems, congruent with the human tendency to use a prototype approach to classify both animate and inanimate objects (Spitzer et al., 2008; Westen et al., 2006). Moreover, several statistical methods have been designed to investigate the development, nature, and structure of prototypes, which could be productively applied to the classification of psychopathology (Westen et al., 2006). Hence, adopting a prototype approach should not only facilitate research in the study of psychopathology, but should also facilitate the clinical utility of the proposed model. In this context, cognitive science has shown that prototypes have many advantages over either strictly categorical and purely dimensional views. In particular, prototypes have a high information to time and effort ratio (Spitzer et al., 2008) that enable clinicians to simultaneously consider the dynamic interactions between different dimensions, a view absent in the DSM and in the empirically-derived trait models discussed.

Furthermore, the proposed prototypes in the two configurations model not only provide a theoretical model for integrating clinical disorders in Axis I with the personality disorders of Axis II of the DSM, but it also suggests the possibility of identifying an underlying, possible hierarchical organization of different disorders. As noted earlier, such a view may provide a parsimonious way of dealing with the problematic and vexing issue of comorbidity (Egan, Wade, & Shafran, in press). For example, evidence suggests that anaclitic and introjective personality traits may explain in part the high comorbidity among depression and conduct and antisocial disorders (e.g., Blatt, 2004; Blatt & Shichman, 1981), substance abuse (e.g., Blatt, Rounsaville, Eyre & Wilber, 1984), eating disorders (e.g., Bers, Blatt, & Dolinksy, 2004; Claes et al., 2006; Westen & Harnden-Fischer, 2001), sleep disturbance (Norlander, Johansson, & Bood, 2005), posttraumatic stress disorder (Gargurevich, 2006; Southwick, Yehuda, & Giller, 1995) and chronic fatigue syndrome (Van Houdenhove & Luyten, 2008). These symptom-based disorders may therefore be part of a spectrum of disorders that can be subsumed under higher-order prototypes. Multivariate statistical methods could assist in exploring such potential spectrum and/or hierarchical organizations of psychopathology.

5.3. A developmental perspective: equifinality and multifinality as central principles in personality development

The third property of the model, which is closely related to the second property, is its *developmental perspective*, which is depicted in the left and middle section of Fig. 5. A common criticism of the DSM is its lack of developmental sensitivity because it typically uses the same set of criteria for different ages and developmental stages (Hudziak et al., 2007). In addition, most children present with multiple problems and thus DSM's emphasis on categories, and treatment strategies that target these specific DSM disorders, is difficult to apply to mental disorders in childhood and adolescence (Hudziak et al., 2007; Pesenti-Gritti et al., 2008). Moreover, the DSM system does not sufficiently acknowledge the continuity between disorders and problems in childhood/adolescence and adulthood. Antisocial behavior in childhood and adolescence, for instance, is currently subsumed under the label of conduct disorder, but when these problems persist into adulthood, these are categorized as antisocial personality disorder. Hence, the use of arbitrary age limits, also in the categorization of personality disorders, hampers research and clinical practice (Westen, Dutra, & Shedler, 2005).

In contrast, congruent with contemporary approaches in developmental psychopathology, we believe that vulnerability to psychopathology is best conceptualized based on the concepts of equifinality and multifinality across the life span (Cicchetti & Rogosch, 1996). Rather than trying to distinguish between different disorders and assuming that each disorder has a relatively unique etiology (Blatt & Luyten, 2010; Westen et al., 2004), the principle of equifinality holds that different etiological factors may lead, depending on their interaction with other factors, to the same developmental outcome. Multifinality refers to the observation that one particular developmental factor (e.g., temperament), depending on other factors, may lead to different developmental outcomes. It is clear that these issues of equifinality and multifinality force both researchers and clinicians to think in terms of the complex developmental pathways that lead to a range of end states that share common characteristics (i.e., clusters or spectra of disorders), rather than focusing on specific disorders (Luyten, Blatt, Van Houdenhove, & Corveleyn, 2006). This suggests that many psychiatric disorders potentially share common etiological factors, and thus are part of spectra situated in the same or at least adjacent region in the two-dimensional space defined by relatedness and self-definition.

It is in this regard that empirically-derived models, with their focus on lower level temperament factors, may complement the broader theory-driven models of personality development in identifying key factors that determine the infinitely complex developmental pathways leading to (clusters of) various disorders. The detailed study of the complex pathways of these lower order, more basic, temperament and personality factors across development may lead to considerable advances in our understanding of the etiology and pathogenesis of psychiatric disorders. For instance, arrows in Fig. 5 from the basic temperamental factors X_2 and X_3 to dependent personality disorder represent a simplified depiction of equifinality (e.g., two basic temperamental factors implicated in dependent personality disorder), whereas arrows starting from X_3 depict a simplified model of multifinality (e.g., one temperamental factor such as effortful control, that is implicated in all three depicted personality disorders). In this context, person-centered and variable-centered research may complement each other in identifying developmental trajectories of both

individuals as well as specific variables implicated in the development of normal and disrupted personality development (Luyten et al., 2008).

Moreover, as depicted on the left side of Fig. 5, future research should seek to identify the molecular bases and correlates of these fundamental "building blocks" of personality. Hence, the proposed model could yield a fine-grained, multiple level analysis of the different psychobiological factors involved in both normal and disrupted personality development, congruent with recent calls for such multiple level analyses in developmental psychopathology (Granger & Fortunato, submitted for publication). Moreover, future research should be devoted to investigating the biopsychosocial factors influencing whether these factors are expressed in either internalizing or externalizing form, and how both situational and within- and between-person variation influences the expression of psychopathology across different developmental stages (Fraley & Roberts, 2005).

In addition, as depicted in Fig. 5, future research should also investigate the interaction between more basic temperament and environmental factors. In this context, a number of sophisticated statistical models have been developed to model the role of relatively stable versus stochastic and person-dependent environmental factors (Fraley & Roberts, 2005), and the possible role of gene-environment correlations and interactions (Moffitt, Caspi, & Rutter, 2005). These sophisticated statistical models could also be integrated with connectionist models of the development of cognitive-affective schemas or internal working models of self and others across the life span (Fraley, 2007), and could shed light on the neural correlates of representations of self and others (Lieberman, 2007), as noted earlier.

With regard to the developmental perspective included in the proposed model, it is important to note that while the two-dimensional model in the right side of Fig. 5 shares the mathematical properties of circumplex models, the developmental aspect of Fig. 5 has very different mathematical properties. In particular, it should be clear from the above that different disorders – defined as prototypical conflict-defense constellations – can be expressed at different developmental levels. Hence, from this perspective, disorders are best considered as defining different levels of organization in the two developmental dimensions – points along which individuals can *progress or regress*, expressed in two-sided arrows. Moreover, much of the causality involved in equifinality and multifinality may be nonlinear, and it may be necessary in developmental psychopathology research to use statistical models that have been developed to investigate nonlinearity in psychological development more generally (Granic & Patterson, 2006).

These considerations may further enlighten the dynamics involved in different disorders. In illustration, we turn to three common personality disorders depicted in Fig. 5, i.e., dependent personality disorders (DPD), avoidant personality disorder (AVPD), and antisocial personality disorder (APD). Studies suggest that DPD, congruent with theory-driven models, is situated in the Low Avoidance-High Anxiety quadrant, reflecting strong desires for attachment and love in combination with strong fears of abandonment and loss of love (Blatt, 2008; Bornstein, 1992; Meyer & Pilkonis, 2005). Hence, in terms of the attachment "push-pull" mechanism, individuals with DPD show a strong "push" towards significant others, and low levels of "pull" away from others. AVPD, in contrast, is situated within the High-Anxiety, High-Avoidance quadrant, suggesting that these individuals are involved in an approach-avoidance conflict. On one hand, they desire to be accepted and admired (strong push), but fear, on the other hand, that they will be criticized and rejected, leading them to "pull" away from others. Individuals with APD, in contrast, often show extremely high levels of avoidance ("pull"), and an almost complete denial of needs to be close to others ("push"). Hence, these three disorders clearly reflect different ways of dealing with issues of relatedness and self-definition. These different ways of dealing with these two most fundamental of motives can be expressed, depending on other factors, in either internalizing or externalizing form. For instance, whereas young adolescents, most likely those with low levels of effortful control (disinhibition), may attempt to cope with issues of self-criticism by projecting these onto authority figures and society, expressed in antisocial behavior, other adolescents, probably those with higher levels of effortful control (disinhibition), may express these same issues in self-critical (introjective) depression (Leadbeater et al., 1999).

Finally, these considerations again illustrate that disorders are not static end states, but complex, multi-determined, dynamic conflict–defense resolutions. For instance, whereas individuals in the high avoidance and low anxiety quadrant may report a positive model of self, studies clearly indicate that this results from a continuous defense against underlying feelings of insecurity and inferiority (Mikulincer & Shaver, 2007). Likewise, dependent individuals do not simply have positive models of others, they also harbour feelings of jealousy and anger towards others, which they typically inhibit out of fear of abandonment and rejection (Bornstein, 1992; Mikulincer & Shaver, 2007).

6. Implications for future research and clinical practice

Throughout this paper we have discussed implications of a combined theory-driven and empirically-derived approach for future research concerning the nature and classification of psychopathology. To summarize these implications, the proposed integrated prototype approach spells out a clear agenda for future research, consisting of (a) the identification of prototypical conflict-defense constellations, (b) locating these prototypes in the two-dimensional space spanned by relatedness and self-definition, (c) investigating the developmental and cross-cultural stability and variability of these prototypes, and, finally, (d) the identification of basic biological and psychosocial factors, and their interaction with different types of environmental factors, implicated in the developmental pathways that contribute to the formation of these prototypes. Moreover, future research should investigate the relationship between the proposed model and other circumplex models, including circumplex models of human value priorities (Schwartz, 1992) and emotions (Plutchik & Hope, 1997; Posner, Russell, & Peterson, 2005), particularly as the latter models have related basic dimensions involved in emotions to independent neurophysiological systems (Posner et al., 2005).

Another important task for future research is the investigation of the implications of these formulations for prevention and intervention, particularly as growing research evidence in adults demonstrates that patients that primarily show conflicts around relatedness (anaclitic patients) and patients that primarily show conflicts around issues of self-definition and autonomy (introjective patients) are differentially responsive to different forms of psychotherapy and change in different, though equally desirable, ways (for a review, see Blatt et al., 2010). In particular, anaclitic patients appear to respond primarily to emotional support, while introjective patients appear to respond primarily to the interpretative, exploratory dimensions of the therapeutic process. In addition, anaclitic patients change primarily in the quality of their interpersonal relationships while introjective patients show primarily symptom reduction and changes in the efficiency of their cognitive functioning (Blatt, Besser & Ford, 2007; Blatt & Ford, 1994).

These findings suggest that the fundamental synergistic developmental interaction of processes of interpersonal relatedness and self-definition in normal psychological development may also occur in processes of therapeutic change and indicate a "final common developmental pathway" through which effective interventions exert their effects. The possible parallel between therapeutic and normal and disrupted developmental processes may provide a unique

conceptual model and theoretical paradigm to study various factors involved in these developmental processes. Cicchetti and Gunnar (2008), for instance, stress the value of studying the interaction of biological, psychological and environmental factors in response to different types of interventions as a further way of understanding developmental processes. We propose that interventions that are effective in preventing or treating mental disorders may act through experiences of engagement and disengagement, of attachment and separation, of gratifying involvement with others and experiences of incompatibility with aspects of that involvement in the treatment process, as it does throughout life (Behrends & Blatt, 1985; Blatt & Behrends, 1987). Hence, sustained and consolidated progress in psychotherapy, for instance, may involve the reactivation of the normal synergistic developmental process in which interpersonal experiences in the therapeutic relationship contribute to constructive revisions in the sense of self that lead to more mature expressions of interpersonal relatedness that in turn contribute to further refinements in the sense of self (Blatt & Luyten, 2009; Blatt, Zuroff, Hawley, & Auerbach, 2010).

Moreover, research suggests that these sequential experiences of engagement and disengagement in the treatment process result in the reduction and revision of distorted, impaired, and possibly pathological, representations of self and significant others and to the development of new, revised, more articulated, differentiated, and integrated representations of self, of others, and of their actual and potential relationships (for a review, see Blatt et al., 2010; Blatt & Luyten, 2009). Activation of distorted representations of self and of significant others in the treatment process thus provide the patient and the therapist the opportunity to observe, understand and revise these distorted representations. These revised internalizations are expressed behaviorally and psychologically in more mature levels of self-definition and of interpersonal relatedness and, as research indicates in symptom reduction, the development of enhanced adaptive capacities, and increased understanding of self and others (Blatt et al., 2010). This capacity to observe and understand self and others is a meta-capacity for mentalization that some investigators (e.g., Fonagy & Bateman, 2006) consider a universal mutative factor in treatment. In some patients this capacity has to be stimulated and created; while in less disturbed patients, this capacity is more or less present, which may have implications for the nature of interventions (Fonagy et al., 1993). For example, in more disturbed patients with severe impairments in this capacity, interventions may need to be primarily aimed at the recovery of this capacity before other, more insight-oriented, interventions are indicated (Fonagy & Luyten, 2009).

From this perspective, change in representational structures in the therapeutic process is similar in fundamental ways to the processes of normal psychological development. These changes include differentiated and integrated representations of self and others — changes that indicate a well-established capacity for mentalization that is necessary for understanding interpersonal relationships and to effectively navigate the social world. The systematic study of these revisions in mental representations or cognitive-affective schemas of self and of others can provide a method for assessing the extent and nature of therapeutic change — the reparative interpersonal therapeutic process in which individuals are able to move toward more mature levels of self-definition and of interpersonal relatedness with a capacity to find personal satisfaction in mutually enhancing and facilitating interpersonal relationships. This focus on changes in mental representation of self and of others in the treatment process also provides, as noted, powerful links between intervention research and the newly emerging field of social cognitive neuroscience that seeks to use neuroscience research tools to examine social processes including the understanding of oneself and others and the "processes that occur at the interface of self and others" (Lieberman, 2007, p. 259).

7. Conclusions

Our paper integrates theory-driven and empirically-derived approaches toward personality development and the classification of psychopathology to identify new perspectives for integrating disparate literatures that link classification, assessment, prevention and treatment of psychopathology to principles of normal and disrupted personality development. We take a developmental perspective that emphasizes continuity in development throughout life, as well as continuity between normal personality development, the nature of psychopathology and the treatment process.

This approach opens up avenues for an integrative approach that stresses the need for research on the interaction between more basic personality factors and environmental factors and their neurobiological underpinnings in both normal and disrupted personality development. Moreover, a proposed dimensional/prototype approach to diagnosis should further elucidate the nature of psychopathology and facilitate clinical diagnosis because it more closely resembles the way clinicians think about personality and psychopathology than current categorical or atheoretical dimensional classification systems, thereby also facilitating the development of more effective treatment strategies.

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