



Published in final edited form as:

*J Pers Assess.* 2011 July ; 93(4): 370–379. doi:10.1080/00223891.2011.577477.

## Qualitative and Quantitative Distinctions in Personality Disorder

**Aidan G. C. Wright**

The Pennsylvania State University

### Abstract

The “categorical-dimensional debate” has catalyzed a wealth of empirical advances in the study of personality pathology. However, this debate is merely one articulation of a broader conceptual question regarding whether to define and describe psychopathology as a *quantitatively* extreme expression of normal functioning or as *qualitatively* distinct in its process. In this paper I argue that dynamic models of personality (e.g., object-relations, cognitive-affective processing system) offer the conceptual scaffolding to reconcile these seemingly incompatible approaches to characterizing the relationship between normal and pathological personality. I propose that advances in personality assessment that sample behavior and experiences intensively provide the empirical techniques, whereas interpersonal theory offers an integrative theoretical framework, for accomplishing this goal.

### Keywords

categorical-dimensional debate; qualitative-quantitative models; personality; personality disorders; classification

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It is important to understand the structure of psychopathology because this structure clarifies which constructs are meaningful for psychopathologists to study, how to classify and assess individuals with psychiatric difficulties, and how to intervene clinically. The “categorical-dimensional debate” has been historically central to the developing understanding of this structure (Kendell, 1975; Widiger & Trull, 2007). This debate has again taken on heightened significance as the publication of the *Diagnostic and Statistical Manual of Mental Disorders, fifth edition* (DSM-5) is anticipated in 2013. Many have questioned the validity and utility of the categorically defined personality disorders (PDs) in recent editions of the DSM, and this has led to suggestions that PD be defined dimensionally using normative personality trait models (Widiger, 1993; Widiger, Clark, & Livesley, 2009; Widiger & Simonsen, 2005). However, significant questions remain about whether personality pathology can be neatly folded into the same dimensions as normal personality functioning (Krueger et al., in press; Livesley & Jang, 2005). Yet, the debate on whether to define PD as categorically different from or dimensionally continuous with normal personality is but one argument in a broader qualitative-quantitative debate. Qualitative differences are those that are characterized by differences in processes, mechanisms, and structures, whereas quantitative distinctions are characterized by differences in amount or degree. By shifting focus from categorical vs. dimensional articulations of personality pathology to qualitative vs. quantitative distinctions in functioning, many of the quandaries the field currently faces might be reconciled.

## A Quandary

The problems with the current categorical classification of PDs have been well documented by many authors (e.g., Clark, 2007; First, 2003; Krueger & Markon, 2006; Widiger & Clark, 2000; Widiger & Samuel, 2005).<sup>1</sup> The consistent finding of high rates of co-occurrence among categorically defined disorders (Krueger & Tackett, 2003; Widiger & Clark, 2000), boundary definitional issues, temporal instability of symptoms (Lenzenweger, Johnson, & Willett, 2004; Skodol, 2008) and the arbitrary nature of symptom cutoffs (Huprich & Bornstein, 2007; Widiger & Clark, 2000) are just some of the problems associated with the categorical approach conceptualized by the DSM. Investigators (e.g., Morey et al., 2007; Skodol et al., 2005) have addressed some of these problems by measuring the DSM PDs *continuously* (i.e., as symptom counts) as opposed to categorically (i.e., diagnosed or not). Although this manner of treating the PDs dimensionally increases reliability and predictive power, it side-steps the fundamental question of whether PD lies on the *continuum* of normal personality traits and whether there are distinct typologies.

In addition, although the PDs are not explicitly linked to normal personality features in the DSM-IV, the results of numerous programs of research converge on the finding that normative personality traits and PDs are strongly related (Krueger, Markon, Patrick, & Iacono, 2005; Samuel & Widiger, 2008; Saulsman & Page, 2004; Wiggins & Pincus, 1989). When compared to nonclinical control groups, PDs show an elevated profile on certain FFM factors (Morey, Gunderson, Quigley, & Lyons, 2000; Morey et al., 2002). Moreover, clinicians can reliably generate FFM profiles for individual PDs and this seems to account for observed patterns of co-occurrence (Lynam & Widiger, 2001). These findings have led some researchers to suggest that PD can be effectively summarized by using the basic dimensions of personality, and, what is more, that PD is best understood as lying on a continuum with basic personality functioning (Widiger, 1993; Widiger et al., 2009; Widiger & Simonsen, 2005).

Nevertheless, despite the appeal of adopting a dimensional approach to describing PD that uses broad, basic personality trait dimensions supplemented by more specific, hierarchically organized sub-dimensions or facets, considerable problems exist in the ability of this approach to capture the full breadth of phenomenology and phenotypic variation observed in abnormal functioning. Five key problems are associated with adopting a normative trait based model as the basis for the definition of PD. First, *Structure* – It is commonly assumed that the structure of personality dimensions in the population adequately captures the personality structure for any given individual. However, individuals may possess widely varying idiographic personality structures (Borkenau & Ostendorf, 1998; Hamaker, Dolan, & Molenaar, 2005; Molenaar & Campbell, 2009; Tracey & Rohlfing, 2010). In other words, popular trait models are based on *interindividual* differences, and may not be able to fully account for *intraindividual* structure. Intraindividual structure emerges out of the covariation of functional variables across time, and this has been shown mathematically to be separable from the cross-sectional structure that emerges out of group based analyses of personality traits (Beckman, Wood, & Minbashian, 2010; Molenaar, 2004). Thus, although researchers have argued that the structure of normal and abnormal personality is isomorphic on the basis of the emergence of similar factors across normal and clinical samples (O'Connor, 2002), it remains an open question whether individuals with PD differ in intraindividual personality structure in any systematic way from non-PD individuals.

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<sup>1</sup>Due to considerations of space and conceptual clarity, this discussion focuses on personality and personality disorder to the exclusion of the relationship between personality and Axis I disorders. Nevertheless, it is presumed that the arguments presented here similarly apply to these disorders, and there is empirical support for this assumption (e.g., Krueger, 2005).

Second, *Pattern* - Normal trait based models of PD do not (currently) contain a direct representation of processes and oscillation (or rigid lack of oscillation) between states (Westen, 1995). Extremity (in the statistical sense) on a normal trait does not *ipso facto* determine whether an individual's behavior will be expressed extremely (i.e., shouting vs. talking), rigidly (i.e., to the exclusion of other behaviors), or maladaptively (i.e., doing a certain behavior when it would be wise to try something else; Wakefield, 2008). Dynamic constructs like affective lability show a complex relationship with traits, which in turn fail to explain the majority of variance in the construct (Kamen et al., 2010).

Third, *Level* - Personality exists at multiple levels of functioning that mutually influence each other (e.g., motivation, cognition, overt behavior; unconscious vs. conscious; Johns, Robins, & Pervin, 2008). An articulation of the relationships among these levels sharpens the focus on mechanisms that drive personality pathology and augments the description of the purpose of pathological behavior. Overt behavior is given meaning by separating personality in to its component processes and understanding functioning at multiple levels. PD is often associated with motivational strivings that manifest in paradoxical behavior. For instance, the overtly hostile aggression sometimes observed in dependent PD would seem anomalous, but it is easily understood if it is recognized as a maladaptive strategy to satisfy the motivation for affiliation (i.e., prevent the other from leaving; Bornstein, 2005).

Fourth, *Specificity* - Broad dimensions of normative functioning do not explain when and under what circumstances problematic functioning will occur. In other words, it is necessary to know the features of the situation that an individual is responding to (Bornstein, 2003; see also Huprich, this issue). For example, narcissism predicts aggressive responses to ego threat, but psychopathy predicts aggression in response to physical threat (Jones & Paulhus, 2010). Importantly, normal trait profiles struggle to account for interpretive processes such as an individual's construal of the meaning of situations, events, their own behavior, and the behavior of others all of which are theoretically integral to the concept of PD (Kernberg, 1984; Livesley, 2003; Pincus & Hopwood, in press). These may be more important in predicting behavior than the objectively defined situation (Reis, 2008).

Fifth, *Coverage* (Trull, 2005) - It is not clear whether the majority of variance in pathological personality expression is captured by normal traits (Clark, 2007). Indeed, some of the more aberrant aspects of PD cannot be adequately captured by normal traits alone (e.g., self-mutilation; Benjamin, 1993a). For example, self-injury, an important clinical phenomenon, does not logically follow from extremity on any one or pattern of the commonly assessed trait dimensions, and empirical results confirm that the majority of variance in self-harm is unique and unaccounted for by broader domains of personality (Markon, Krueger, & Watson, 2005). In short, although dimensional trait models of normal personality are systematically related to PD, they cannot fully explain it—when it comes to PD, the whole is more than the sum of its parts.

Therefore, it would seem that the field is faced with a quandary. Normative personality should, by definition, serve as the starting point for understanding and defining PD. This allows for the scientific integration of the study of normal and abnormal processes. And, as expected, normal personality traits show a consistent and replicable relationship with PD. Nevertheless, there remain important aspects in these clinical constructs that are unaccounted for by these models. Given the wealth of empirical results, it is not surprising that the dimensional models that have achieved the most attention propose that PDs exist as an “extreme and maladaptive” manifestation of normal personality traits, and not as separate or distinct categories (Widiger & Simonsen, 2005). And yet, there are actually two parts of this proposal—extremity *and* maladaptivity. As Wakefield (2008) has pointed out, extremity is not necessarily equivalent with maladaptivity (i.e., dysfunction or harm). Moreover,

extremity is a purely quantitative distinction, whereas maladaptive (or the notion of a “maladaptive variant”) contains an implicit argument for a qualitative difference in process, mechanism, and possibly structure, but certainly functioning, regardless of whether trait extremity is necessary for its manifestation.

## A New Analogy

This distinction between *extremity as a quantitative matter of degree* and *maladaptivity as a qualitative matter of mechanism* is critical for the debate about how to best represent PD and for understanding more generally the role of normative personality processes in personality pathology. Analogies can serve as arbiters and guides for whole programs of research (cf. Fernandez-Duque & Johnson, 1999); the analogy that is most often offered to conceptually frame the utility of relating normal to abnormal functioning quantitatively is a medical one—blood pressure (Skodol & Bender, 2009). In this analogy personality dimensions are akin to blood pressure, which is a basic aspect of normal functioning, with everyone falling somewhere along the continuum. Meaningful cutoffs could conceivably be agreed upon and established for the definition of extreme or “clinically significant” levels. This analogy is meant to effectively reconcile the need for categorical cutoffs in an area that appears to be dimensionally defined. The blood pressure analogy is a good one in many ways. For one, it is a concept that most adults are familiar with and it is simple and straightforward. More pertinent to PD as potentially represented by extreme normative traits, it includes a full bipolar dimension (see Samuel, this issue for a discussion of this), as problems are associated both with high and low blood pressure.

However, the blood pressure analogy fails to capture the important *qualitative* distinctions in process that are not adequately represented by simple *quantitative* cut scores along linear dimensions. Perhaps this is only a matter of how the analogy is put forth, because what makes extreme blood pressure problematic are qualitatively different processes at the low (i.e., not enough oxygen reaches the brain) and high (i.e., the pressure breaks down the arteries at the bifurcations leading to a buildup of plaques) ends of the continuum. Thus it is not as simple an analogy as it appears on the surface, and further thought reveals interesting new implications—namely, qualitatively distinct processes.

An alternative analogy that offers a distinct perspective on the relationship between normal and abnormal functioning involves the very familiar substance, water (H<sub>2</sub>O). Like all physical substances, H<sub>2</sub>O is not a static entity but instead exists in a number of dynamic states which vary in their internal structure and relationship to the environment. Specifically, although the temperature of H<sub>2</sub>O is perfectly continuous and easily measured *quantitatively*, at two familiar points along this continuum, shifts occur that change H<sub>2</sub>O *qualitatively* as it can take the form of ice, water, or steam. Each of these different phases of H<sub>2</sub>O are qualitatively different in their internal relationships between molecules (*Structure*), the manner in which they interact with other substances (*Pattern*), and their appearance, form, and properties (*Levels*). Additionally, although temperature plays a crucial role, other internal and external variables such as salinity and atmospheric pressure further contribute to determining the state of the substance (*Specificity*). Regardless of the state, the internal structure, and the qualitatively distinct properties, all phases are *made of the same matter*.

The view taken in this paper is that the relationship of personality to PD is similar to the relationship between water, ice, and steam. Personality pathology is not merely an arbitrary quantitative cutoff along a continuous distribution, nor is PD a qualitatively distinct “substance” from normal personality. Rather, PD exists as a qualitatively distinct phase along the continuum of basic personality functioning that can be distinguished by an individual’s internal psychological structure and the manner in which they interact with the

environment. Stated simply, personality and PD are not made of categorically different substances, but they are defined by qualitatively different processes.

## Extending the Analogy

Can all that is ice be captured by “extremely cold water?” Can all that is steam be captured by “extremely hot water?” Probably not, since even from a lexical perspective other words (i.e., ice and steam) have been created to capture this qualitative difference that occurs at each phase shift. Similarly, is pathological narcissism merely “disagreeable extraversion?” Can borderline personality disorder be captured fully by “high neuroticism and low agreeableness and conscientiousness?” The view offered here is that although these trait constellations are associated with these respective disorders, describing the disorders as constellations of these traits does not fully capture their essence and provides overly simple caricatures of personality pathology, a highly complex clinical phenomenon. A number of empirical studies confirm this by showing that despite significant relationships between normative traits and PD, on average the majority of variance in PD remains unexplained when accounting for traits and even facets (Bagby et al., 2005; Reynolds & Clark, 2001).

Dimensional trait profiles approximate but do not fully articulate the structure of an individual’s personality. In part, this is because an individual’s trait profile says nothing of the intraindividual relationship between the traits and how the traits interact with each other within an individual across time and situations (Hamaker et al., 2005; Wright, Pincus, & Lenzenweger, 2010). The majority of the research that has linked traits and profiles with psychopathology has done so by correlating traits and disorders or examining the traits and profiles associated with members of different clinical groups. While this serves to generate meaningful and important results, it does not resolve the issue of specificity of the relationship. Rarely if ever are individuals with a certain trait or profile of traits found, and then subsequently diagnosed. What this leaves us with is the knowledge of what traits might be elevated if a person possesses a diagnosis, but not the reverse. It is not the case that in the population each individual with a given trait profile possesses the same PD diagnosis, or any diagnosis at all for that matter.

Take for example the assertion that narcissists are “disagreeable extraverts” (Miller, Gaughan, Pryor, Kamen, & Campbell, 2009). While it may be the case that certain types of narcissism are associated with this trait profile (but see Samuel & Widiger, 2008 for contrasting results), the reverse is not necessarily true, namely that all disagreeable extraverts (or extraverted antagonists for that matter) are narcissistic. Arguably, what is unique about narcissism is the when, how, and for what purpose extraverted and disagreeable behaviors (and others) are enacted (see e.g., Morf, Horvath, & Torchetti, 2010; Pincus & Lukowitsky, 2010). Indeed, research shows that narcissism is associated with aggressive behavior, but that aggression among narcissistic individuals tends to be situationally specific (Jones & Paulhus, 2010). What differentiates a narcissist from any given disagreeable extravert is the distinct patterning of behavior (which in turn betrays distinct internal processes and structure), that will be experienced as qualitatively distinct by those with whom they interact, and, importantly, will have implications for intervention and prognosis.

Thus, it is not merely in the *what*, but also in the *how*, *when*, and *why* that the differences between normal and abnormal personality arise. The *maladjustment* exists in the process, in other words, the patterning and the purpose for which the individual enacts behaviors. To adequately account for these qualitative differences, dynamic models of personality that include temporal sequences, mental representation of the self and environment, internally experienced drives (e.g., motivations, fears), and regulatory mechanisms are required.<sup>2</sup>

## Dynamic Models of Personality

If dynamic processes differentiate normal and abnormal personality functioning (i.e., intraindividual structure, behavioral pattern, between level interactions, and situational specificity), the models used to define and study personality pathology must capture dynamic processes explicitly. However, most research relating normal and abnormal personality is based on static trait conceptualizations of personality. Models that are based on an understanding of personality as an ensemble of structures and processes that include a self-concept, motivations, fears, and self-regulation strategies seem better suited than trait models to capture this distinction.

Two very different theoretical traditions have arrived at strikingly similar systems of personality that are well-suited for these purposes. From the psychodynamic tradition, object-relations models (Fairbairn, 1952; Kernberg, 1975, 1984; Greenberg & Mitchell, 1983) have developed a view of personality as emerging out of interpersonal relationships which are represented mentally and serve as the basis for enduring patterns of relating to others, understanding the world, and responding (See also Luyten & Blatt, 2011). Object relations are units of mental representations of self and other colored by a linking affect state. Key to this viewpoint is the affective link between the way the individual construes themselves and others in a psychological situation. A strikingly similar description has been offered by social-cognitive theorists under the name Cognitive-Affective Processing System (CAPS; Mischel & Shoda, 1998; Shoda, Mischel, & Wright, 1994). This approach also makes use of elements of personality termed the cognitive-affective processing units, which mediate the encoding of situations and the chosen behavioral responses. These include expectancies, beliefs, goals and the like, but also emotions. This gives rise to stable *if-then* behavioral signatures that summarize the behavioral contingencies associated with specific interpretations and affective responses to situations. Both object relations and CAPS theories are remarkably similar in their use of mental representation, affective moderation, and behavioral responding that varies as a function of the psychological situation as construed by the individual.

A number of features of dynamic personality models are appealing for defining the distinction between normality and abnormality. For one, they can adequately capture trait-like stability *and* intraindividual variability. Dynamic models can subsume trait models more readily than trait models can accommodate dynamic models. They accomplish this by allowing for within situation consistency *and* across situation variability. Importantly, the unit of analysis is the psychological situation or the situation as an individual perceives it. An individual's construal of a situation may be a faithful representation of the actual situation or, alternatively, may bear little to no resemblance to what another might describe as occurring, instead representing an idiosyncratic and unique representation (Reis, 2008). Additionally, dynamic models include the interplay between the individual and the environment, allowing for a patterning of these processes. To accomplish this, these models must have a taxonomy that is not limited to an individual's behavior, but also includes the important and salient aspects of situations to which individuals attend and respond. Finally, and perhaps most importantly, these models tend to be person centered as opposed to variable centered (see Shedler et al., 2010 for a discussion of this issue with respect to PD). Broad variable based models have long been plagued by the problem of going from the nomothetic to the idiographic (Molenaar, 2004), an important issue in practical assessment. In contrast, dynamic models are more easily built from the individual up through the use of

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<sup>2</sup>The word dynamic is used to refer to processes that occur within and between levels of experience. It is not meant to be synonymous with the term psychodynamic as has emerged from the psychoanalytic tradition.

constructs such as “behavioral signatures,” (Mischel & Shoda, 1998) a decidedly person-based nomenclature (for example, our signature stands in our stead on legal documents).

Object-relations and CAPS each bring unique strengths that can be applied to establishing the difference between personality and PD. Object-relations theory has a longer tradition and stems from clinical observation and theory, and therefore possesses a number of established constructs (e.g., splitting, reversals, projective-identification) that are familiar to clinicians and which were created specifically for the purpose of capturing the patterns of pathological personality functioning. The CAPS model emerged out of laboratory based personality science, and therefore offers a language that can be easily translated to experimental research. CAPS has less of a tradition of being applied to psychopathology and PD, although this is changing (Eaton, South, & Krueger, 2009; Pincus, Lukowitsky, Wright, & Eichler, 2009). Cardinal patterns of psychopathology can be anchored to consistent contingent *if-then* structures of behavioral and emotional responses (*thens*) in situations the individual experiences as functionally equivalent (*ifs*). A number of authors have now proposed that the CAPS model would be amenable to characterizing PD pathology (Eaton et al., 2009; Huprich & Bornstein, 2007; Pincus et al., 2009) and empirical findings are beginning to support this view. Rhadigan & Huprich (in press) have found that CAPS “*if-then*” signature based descriptions of the current PDs outperformed trait based descriptions of the disorders in diagnostic accuracy as rated by clinicians.

Despite the strengths of these dynamic models, they suffer from a lack of an organizing framework for efficiently classifying the psychologically meaningful aspects of situations (Hogan, 2009). Models such as these would benefit greatly from a formal, integrative framework that could serve to classify *both* the psychologically salient aspects of situations and the behavioral responses an individual enacts. Ideally this would be achieved using a common metric that serves to seamlessly link the internal representation of a situation with other psychological structures such as motivations and goals, and also the enacted behavior in the proximal situation.

## The Common Metric: Agency and Communion

What is necessary is a theory of personality that is dynamic, and that can provide the content domains to focus the assessment of the processes and patterns of persons interacting with their environment. Contemporary integrative interpersonal theory (Pincus, 2005; Pincus, Lukowitsky, & Wright, 2010) is well-suited for this task. Rooted in the early theoretical formulations of Sullivan (1953) and Leary (1957), contemporary interpersonal theory has integrated the findings of the neurobiological (Depue & Collins, 1999; Depue & Marrone-Strupinsky, 2005), trait (Wiggins & Trapnell, 1996), social-cognitive (Locke & Sadler, 2007), and motivational (Horowitz et al., 2006; Locke, 2000) literatures to provide a comprehensive scientific model of personality and personality pathology.

A number of recent publications (e.g., Horowitz, 2004; Horowitz et al., 2006; Pincus, 2005; Pincus & Hopwood, in press; Pincus et al., 2010; Pincus & Wright, 2010) have detailed the assumptions and propositions of contemporary integrative interpersonal theory (especially as they pertain to psychopathology and personality disturbance) which are only briefly touched upon here. Central is the assumption that the most important expressions of personality and its pathology occur in interpersonal situations. The DSM-IV-TR (APA, 2000) lists interpersonal dysfunction as part of the core definitions of each specific PD, and the DSM-5 proposal affirms this view by defining the general criteria for PD in terms of interpersonal functioning (see also Pincus, in press). Although the PDs list additional criteria and features beyond those associated with interpersonal dysfunction, much of the symptomatic dysfunction manifests in interpersonal situations (Benjamin, 1993b; Kiesler, 1986). In much

the same way that the defining features of steam, ice, and water can be faithfully described by reference to the dynamics of the molecules (e.g., ice is rigid, steam is volatile, and water is stable yet flexible) which has bearing on external relations to the environment (e.g., ice shatters, steam is difficult to contain), so too can personality and its pathology be captured by the dynamics of an individual's interpersonal pattern, both internal via the mental construal of self and other and external in their behavior and approach toward others.

Interpersonal theory uses the broad concepts of agency and communion to provide a structure to define, describe, and classify interpersonal situations. The common metric of agentic and communal dimensions contextualizes both behavior and the salient aspects of situations to which individuals attend and respond (Fournier, Moskowitz, & Zuroff, 2008; Fournier, Moskowitz, & Zuroff, 2009; Sadikaj, Russell, Moskowitz, & Paris, 2010). The "interpersonal situation" refers to the *in vivo*, observable, behavioral exchange between one person and another (or others), *and* the internal processes and states generated within the mind of those interactants via the capacity for perception, mental representation, memory, fantasy, and expectancy. Normative patterns of interpersonal behavior between interactants (Carson, 1969; Sadler, Ethier, & Woody, 2010) serve as baselines for the field-regulatory pulls of interpersonal behavior (i.e., normative *if-then* sequences). Chronic deviations from these patterns likely indicate maladaptive functioning and pathology. Patterns of disturbed functioning can be contextualized by linking the perceived agentic and communal characteristics of others in an interpersonal situation (*ifs*) with the symptomatic or maladaptive behavioral and emotional responses (*thens*) of the patient. These *if-then* sequences can be "daisy-chained" in order to capture the full complexity of dynamic cycles. Mismatches between the behavior that an individual puts forth and the behavior that is necessary for success in a situation can arise from a failure on the part of the individual to adequately construe the situation or from not being able to call upon the appropriate behavioral response (see Eaton et al., 2009 for an elaboration of this issue with the CAPS model).

Building on the content domains of agency and communion, dynamic dimensions are included to specifically articulate the patterned enactment of behaviors (Leary, 1957): moderation versus *intensity* (e.g., talking vs. shouting), flexibility versus *rigidity* (e.g., ability to shift behavior vs. repeating the same behavior over and over), stability versus *oscillation* (e.g., consistency within and across situations vs. unpredictable responses), and accuracy versus *inaccuracy* (i.e., the fit or match of behavior within a situation). Importantly, these dynamic dimensions can be operationalized and quantified with specific reference to interpersonal behavior, and thereby serve as a basis to describe the patterns and processes of disordered personality (e.g., commanding is more dominant than suggesting; variability in dominance across situations; dominant behavior when confronted with dominance; Pincus & Wright, 2010). It is through these dynamic dimensions that we can begin to get an empirical handle on qualitative distinctions in process.

## Researching dynamic processes: borderline personality disorder as an example

The key theoretical questions of how personality and PD relate to one another are also inherently questions of methodology. The majority of the research outlined above relating personality to PD uses cross-sectional methods along with self-report personality assessment techniques. These time-honored methods are limited in their ability to assess process (Bornstein, 2003). In the H<sub>2</sub>O analogy, this is akin to measuring temperature, but still not knowing whether the phase is ice, water, or steam. However, intensive sampling methods have emerged that when coupled with advances in statistical modeling allow for studying the idiographic structure of an individual and the dynamic give-and-take of the individual in



their environment. Although a variety of approaches certainly exist to assess dynamic processes, some of the more promising approaches seek to capture the individual as they generally behave across a wide variety of situations in naturalistic settings. Referred to variously as Ambulatory Assessment, Intensive Repeated Measurement (IRM), or Ecological Momentary Assessment (EMA), this approach to assessment samples an individual's behavior repeatedly in their natural environment (see Ebner-Priemer & Trull, 2009 and Moskowitz, Russell, Sadikaj, & Sutton, 2009 for reviews). The power of this approach to capture and statistically model the dynamic interplay of people and their environments is impressive. An additional benefit is that they are robust to the well known retrospective biases in self-reported functioning (Ebner-Priemer et al., 2006).

A brief review of the manner in which these have been applied to one diagnosis, borderline personality disorder (BPD), demonstrates the power of these approaches to unlock the processes that qualitatively distinguish PD. Russell and her colleagues (2007) differentiated individuals with BPD from nonclinical control participants based on intraindividual variability of interpersonal behavior over a 20-day period. Specifically, individuals with BPD and controls reported a similar mean level of agreeable behavior but BPD participants displayed greater variability, vacillating between high and low levels. Results also suggested elevated mean levels of submissive behaviors combined with lower mean levels of dominant behavior that was more variable for individuals with BPD relative to the control participants. In other words, individuals with BPD were consistently more submissive, but also demonstrated acute elevations and declines in dominance. Finally, as predicted, individuals with BPD endorsed higher and more variable levels of quarrelsomeness when compared to controls.

Using a similar assessment approach, Ebner-Priemer et al. (2007) has identified group specific patterns of affective instability when comparing BPD patients to healthy controls, with BPD patients being distinguishable based on rapid and dramatic declines from positive mood states in particular. Moreover, the sequence of experienced emotions (e.g., anxiety followed by anger) differed between these groups (Reisch et al., 2008). Building on these results, Trull and colleagues (2008) used EMA to investigate affective instability in BPD with a control group of individuals diagnosed with depressive disorder. Of note is that these two groups did not differ on mean levels of positive or negative affect reported across time. In other words, they exhibited similar trait levels of affect. However, the variability in these scores differentiated the two groups, with BPD patients exhibiting greater variability. Of even more interest is that BPD patients also exhibited more abrupt changes in hostility, fear, and sadness as compared with depressive controls. What these results demonstrate is that it is the temporal patterning and contingency of affective functioning that gives rise to the turbulent experience that clinicians recognize as BPD, even when compared to groups with similarity in overall negative affect. Taken together, the molar results of these studies highlight differences in the underlying processes and beckon further research to find the determinants of those distinctions.

These results have since been extended to include the dynamic interplay between perception in interpersonal situations and affective responding (Sadikaj et al., 2010). Results showed that BPD patients, relative to normal controls, exhibited greater negative affect in response to less perceived warmth, and that both positive and negative affect persisted longer across situations. In a recently presented paper, Sadikaj, Moskowitz, Russell, and Zuroff (2010) implemented some of the most articulated models of the processes associated with BPD. Again using EMA techniques, BPD patients were compared with those carrying diagnoses of social phobia (SP). This comparison is particularly interesting because both diagnoses have as core features difficulties with interpersonal perception and responses—in other words, situationally contingent processes. Results showed that for both groups, decreased

perceptions of warmth in an interpersonal situation are associated with higher negative affect. However, the association was strongest for anger in BPD and embarrassment for SP. Furthermore, the two groups differed in the behavioral patterns associated with negative affect, with BPD patients becoming more quarrelsome and SP patients becoming more submissive. As Sadikaj and her colleagues (2010) note, the interpersonal dynamics are specific to the clinical groups. It is this type of result that allows for highly articulated and precise description of symptoms, and offers a first look at the internal process that gives rise to these symptoms. This framework points to multiple possible sources of disturbed functioning (e.g., distortions in interpersonal perception and meaning-making processes; maladaptive, underdeveloped, or overvalued interpersonal goals, motives, expectancies, beliefs, and competencies) which allow for the development of specific hypotheses for future research (Pincus et al., 2009).

## Proposals for Future Research and Practice

Dynamic approaches to personality pathology research such as those reviewed and suggested here may offer useful techniques to empirically quantify what makes PD qualitatively different from normal functioning. Methods can now be linked to theory in ways that further the science and practice of assessing personality pathology. Thus, I offer specific directions for empirically defining the relationship between normal personality and PD.

Starting with the least specific, it is predicted that an individual's net amount of variability in interpersonal behavior, affect, cognitions, and motivation will augment average levels of these domains in predicting pathology.<sup>3</sup> Furthermore, the amount of variability will vary by type of pathology. Variability in emotions, self-esteem, and interpersonal behavior is the hallmark of BPD (Schmideberg, 1959), whereas other pathology, say obsessive-compulsive problems, may be better characterized by rigidity in specific domains. Some of the work reviewed in the prior section addresses this directly (Russell et al., 2007; Trull et al., 2008), but these investigations only focused on BPD. More research is necessary on different pathologies.

Net variability can be differentiated from structured variability in describing and individual's pattern of functioning (Ram & Gerstorf, 2009). Structured variability is characterized by a systematic organization or pattern to the variability, whereas net variability refers to gross measures of fluctuation. Thus a more precise prediction is that there are specific patterns of behavior that are associated with maladaptivity (e.g., in a histrionic patient, if there is a perceived lack of attention, then sexually seductive behavior follows). The work outlined above by Sadikaj and colleagues (2010) and Ebner-Priemer and colleagues (2007; Reisch et al., 2008) has begun to show that structured patterns emerge that are specific to groups. Relatedly, Nock et al. (2009) have shown that self-harming behavior is not only variable, but appears to show some situational specificity. But again, this work has primarily been limited to BPD and there is much left to investigate. Structured variability can be investigated in a variety of ways, and a promising avenue is the exploration of intraindividual factor structure and the relationship between intraindividual factors across time. The use of P-technique factor analysis (i.e., applying factor analysis to scores on multiple variables from one individual across multiple time points; Nesselroade & Ford, 1985) holds the potential to elucidate idiographic structure and change through time, especially when it is coupled with techniques such as time-series analysis (e.g., Hamaker et al., 2005). For instance, a feature that is often associated with passive-aggression is the

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<sup>3</sup>Note that variability is a continuum, ranging from complete rigidity (i.e., the same behavior across all situations) to wild vacillation that is entirely unpredictable.

belief that “to cooperate is to subjugate,” and it might follow that passive-aggressive individuals view bids from others to collaborate as bids for domination. Across time it would be expected that their perceptions of others’ warmth and dominance to covary (i.e., be fused and indistinguishable) such that a factor emerges that blends the two, even when the normative pattern is to perceive interpersonal warmth and dominance in others as separate. This hypothesis can be directly assessed using these techniques. As noted above, studies that have examined the factor structure of individuals, even when using common trait descriptors, find that there is a great deal of interindividual heterogeneity in factor structure (Borkenau & Ostendorf, 1998; Hamaker et al., 2005; Molenaar & Campbell, 2009). To date, there has been no investigation of this as it pertains to abnormal personality functioning. However, Fournier et al. (2009) demonstrated that intraindividual interpersonal structure across time varies, and this is generally unrelated to broad normative traits, but is related to self-reported depression and self-esteem. Applying these approaches to the investigation of personality pathology, and in clinical populations is a highly promising avenue for future research.

The fact that there is evidence of idiographic factor structures and behavioral signatures in turn has bearing on the definition of clinically meaningful groupings of individuals or even taxons (Meehl, 1992), a common (but not isomorphic) adjunct to the categorical-dimensional debate (Waller & Meehl, 1998). Much of the taxometric research is based on scales (e.g., Haslam, 2003), not on a quantification of an individual’s dynamic patterning or use of a particular behavioral signature. It may be that by defining a specific *if-then* process, and then measuring its occurrence over time in individuals, that more clearly defined groups emerge than if dimensional scale scores are used alone. Thus, it is possible that by classifying people based on similarity of individual factor structure or dynamic signatures, more clear groupings or taxa will emerge. More generally, by focusing on specific and testable patterns, a taxonomy of processes may emerge that can be put to good use in the description and differentiation of phenotypic expressions of PD.

Finally, dynamic assessment may eventually play a more direct role in clinical practice. IRM/EMA approaches to personality assessment have not made the jump from use in empirical research to applied assessment. However, as portable yet computationally powerful technology improves (and becomes more affordable), it is easy to imagine the day when an individual patient can be provided a device (or program loaded on their own device) that can be used to collect real time data about targeted assessment issues (e.g., questions about emotion, behavior, specific cognitions) intensively between sessions thereby providing access to a more detailed analysis of their processes. Using any desktop computer with appropriate software, these data can easily be quantitatively modeled to develop an idiographic personality model of the patient at the outset of treatment, followed by a within person comparison to the patient’s own model at the outset of treatment as the treatment progresses (see e.g., Hunter, Ram, & Ryback, 2008). This could provide a direct tracking of improvement and changes associated with treatment.

## Quantitative and Qualitative Distinctions in the Context of the DSM-5.0

On the eve of the next edition of the DSM, the work groups have now released their proposed revisions, including those for personality and PD. Although not finalized, the proposal appears to have a number of features that are consistent with the observations and arguments offered here. Notably, the work group has suggested a two step approach that combines discrimination between normal and disordered personality functioning globally, and a separate description of the content areas of dysfunction via traits, facets, and prototypes. The first step in this approach distinguishes the functioning associated with normal and abnormal personality via a general definition of PD. These criteria focus on

dysfunction in self-identity and interpersonal relatedness which accords well with contemporary interpersonal theory's ability to serve as the organizational framework (Pilkonis, Hallquist, Morse, & Stepp, in press; Pincus, in press). Moreover, much of the language used to define these deficits is inherently process based, which, as is argued here, would seem to be the defining difference between adaptive and maladaptive functioning.

In addition, the work group has proposed a series of *maladaptive traits* to use to establish the content of the dysfunction. What is important here is that these are maladaptive traits, which bear similarity to the broad domains of normal functioning tapped by basic trait models but are not synonymous (see Krueger et al., in press; Krueger & Eaton, 2010). Indeed, it is this very distinction between the "normal trait" and the "maladaptive expression" of those traits that this paper is intending to address. Other maladaptive trait models exist (e.g., SNAP, DAPP) which bear significant similarity to the broad domains of normal functioning (Markon et al., 2005; Widiger et al., 2009). However, by employing maladaptive traits the issue of the qualitative distinction between normal and abnormal personality is sidestepped (see also Hopwood, this issue for a different perspective on this issue). Facets such as "Rigid Perfectionism" or "Manipulativeness" whose items presumably get at the specific processes associated with obsessiveness and taking advantage of others, are, in effect, qualitatively different from normal traits, having the maladaptive processes and functioning imbedded within them. The work group's choice to include abnormal traits would seem to be a wise one given the opinions expressed here, but the question remains open as to what connects the normal traits with the abnormal ones.

It bears mentioning that despite the enthusiasm expressed here for dynamic models and associated methodological advances, this article is not a treatise against trait psychology. The intention of this piece is not to undercut or diminish the undeniable advances associated with trait psychology and assessment as they have been applied to the domain of PD. However, it can be difficult for trait models to articulate the "jump" between normal and abnormal functioning, the issue at question here. Traits and traitedness are not incongruous with dynamic models of personality, and the two approaches are best applied in a complementary fashion to the questions addressed here.

## Conclusion

H. S. Sullivan emphasized that disordered patterns of behavior are deviations and distortions of normal functioning, noting that "We all show everything that any mental patient shows, except for the pattern, the accents, and so on" (1954, p. 183). The use of diagnostic categories ignores the first part of that sentence, whereas the suggestion that pathology exists as mere extreme scores on continuous dimensions of basic personality ignores the second part. The selective attention to quantitative description based purely on the content domains associated with personality traits excludes the highly important process domain which may contain the key to the qualitative distinction between normal and disordered functioning, and between types of disordered functioning. Contemporary interpersonal theory can supply a needed framework for the scientific study of personality and its disorder, and, when coupled with dynamic assessment methodology, the elusive aspects of what differentiates the two can hopefully be understood and inform DSM 5.1 and beyond.

## Acknowledgments

Preparation of this article was supported by grant F31MH087053 from the National Institute of Mental Health. I thank Rachel L. Bachrach, Nicholas R. Eaton, Christopher J. Hopwood, Mark R. Lukowitsky, Aaron L. Pincus, Michael J. Roche, and Gentiana Sadikaj for helpful comments on earlier drafts of this paper. Special thanks are owed to Peter C.M. Molenaar for directly or indirectly influencing my thinking that lead to this publication.

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