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# PROTOTYPE DIAGNOSIS OF PERSONALITY

DREW WESTEN AND REBEKAH BRADLEY

Despite the extraordinary progress made in the understanding of personality disorders (PDs) since the introduction of Axis II in the *Diagnostic and Statistical Manual of Mental Disorders*, 3rd ed. (*DSM-III*), a consensus has emerged that Axis II requires substantial revision (see Livesley & Jang, 2000). Although researchers largely agree on the diagnosis (e.g., categorical diagnosis is problematic, comorbidity is too high), little consensus exists on either prognosis (whether Axis II is going to survive another revision of the diagnostic manual) or the appropriate treatment. Some have called for changes that maximize the continuity with *DSM-III* through *DSM-IV* (e.g., Oldham & Skodol, 2000). Others have suggested more radical solutions, such as replacing PD diagnosis with trait diagnosis using the five-factor model (FFM; e.g., Widiger, Costa, & McCrae, 2002).

In this chapter, we describe an intermediate solution that represents an extension of the prototype approach to classification that guided the architects of the *DSM* since *DSM-II* (see Frances, 1982). We begin by reviewing the prototype concept, its use in psychiatric diagnosis, and research applying this construct to PDs over the past 20 years. Next, we examine some of the ways *DSM-IV* is limited in the way it has attempted to operationalize prototype diagnosis. We then describe an alternative prototype matching procedure that we believe better fulfills the goals of the framers of *DSM-IV*. Finally, we present a case study demonstrating the way this prototype matching approach might be applied in clinical practice.

## PROTOTYPES, CLASSIFICATION, AND PERSONALITY DIAGNOSIS

The polythetic diagnostic decision rules characteristic of the recent editions of the *DSM* (i.e., diagnostic thresholds applied to criteria that are neither necessary nor sufficient for diagnosis of a given disorder) reflect the impact on the *DSM* of categorization research in cognitive science in the 1970s (Frances, 1982; Widiger & Frances, 1985). Research across a number of domains suggested that the classical “defining features” approach to classification, which

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Preparation of this manuscript was supported in part by NIMH MH59685 and MH60892. Address correspondence to Drew Westen, Departments of Psychology and Psychiatry and Behavioral Sciences, Emory University, 532 Kilgo Cir., Atlanta, GA 30322, e-mail [dwesten@emory.edu](mailto:dwesten@emory.edu); or Rebekah Bradley, Psychological Center, Emory University, 1462 Clifton Road, Suite 235, Atlanta, GA 30322, e-mail [rbrad12@emory.edu](mailto:rbrad12@emory.edu).

requires that all cases classified as members of a category share a list of features that are essential (necessarily present), is inadequate for describing many forms of categorization, including psychiatric diagnosis (Cantor & Genero, 1986; Cantor, Smith, French, & Mezzich, 1980; Smith, 1995). As numerous philosophers and psychologists observed (Rosch & Lloyd, 1978; Rosch & Mervis, 1975; Weber, 1949; Wittgenstein, 1953), most of the objects and concepts we encounter in daily life are not rapidly or easily categorized based on defining features. Rather, they belong to fuzzy categories, whose members share many features (likened to family resemblance) but do not share a set of necessary and sufficient features. Thus, people often categorize based on similarity to objects previously encountered; they are more likely to make explicit, rule-based judgments when they run into anomalous cases.

From this point of view, whether a given instance is a member of a category in many circumstances reflects a comparison between the instance and a *prototype*, or abstraction, across many instances. A related *exemplar* model suggests that people tend to compare a target object (or, in the present case, a set of symptoms or personality characteristics) to a salient example of the category considered to be particularly prototypical (e.g., a robin as an exemplar of the category "bird"). In this view, a clinician deciding whether to diagnose a patient with borderline PD is likely to compare the patient to a mental model of the disorder abstracted across dozens of cases and/or to highly salient, prototypic examples encountered over the course of clinical work and training.

The prototype concept was not without precedent in psychiatry. The philosopher and methodologist of social science Max Weber (1949) had described the related concept of *ideal types*, idealized constructs (e.g., a "Protestant work ethic" that spurred the development of capitalism) that do not correspond to any specific case but provide an idealized abstraction of a phenomenon across cases. The psychiatrist Karl Jaspers had drawn on this notion in developing his influential system for classifying psychopathology a half-century ago (Schwartz & Wiggins, 1987).

The late 1970s and 1980s saw a flurry of research applying the prototype concept to the classification of psychopathology and, particularly, PDs. Cantor and Mischel (1977) found evidence for prototype-based memory for personality features (introversion/extraversion) similar to the memory processes identified in cognitive psychology for simpler, nonsocial categorization tasks. Research by Horowitz and colleagues (Horowitz, Post, French, Wallis, & Siegelman, 1981; Horowitz, Wright, Lowenstein, & Parad, 1981) examined the extent to which prototypes could be identified and cases could be classified by expert and nonexpert raters based on the extent of prototypicality of the case. Several studies found that prototypes can be reliably generated and rated by clinicians (e.g., Blashfield, 1985; Livesley & Jackson, 1986; Sprock, 2003).

Some of the most cogent thinking about prototypes in the PD literature can be found in the work of Millon (1969, 1986, 1990), who drew extensively on prototype theory in the development of his biopsychosocial approach to PDs. Millon views the PD categories in *DSM-IV* (which he was instrumental in shaping) and the PD categories he deduced theoretically (and assessed empirically) as heuristic prototypes and argued that the underlying constructs should not be confused with the diagnostic algorithms used to operationalize them (Davis, 1999; Millon & Davis, 1996). When clinicians develop an understanding of a PD, they do not just remember a list of criteria. Rather, they form a complex mental representation of the disorder, which includes expectations about patterns of covariation. Thus, if a patient reports a history of self-mutilation, the clinician may suspect, until other evidence contradicts it, that the patient has difficulty regulating powerful emotions such as sadness or anger.

Further, Millon suggests that the criterion sets for PDs should not simply list criteria at varying levels of generality (from behaviors such as self-mutilation to broad constructs such as identity disturbance) but should reflect a prototype analysis of the underlying *functions* central to personality. The list of domains of functioning presumed to be impaired in patients with PDs delineated in the preamble to Axis II in *DSM-IV* (cognition, interpersonal functioning, affectivity, and impulse regulation) would suggest at least four domains for each disorder. Millon's point is both conceptual and psychometric: If we were to describe PDs using even this simple, relatively atheoretical list of personality functions, each PD prototype would be defined in terms of characteristic modes of cognition, impulse regulation, and the like, with examples or subcriteria used to anchor each of these domains in relatively concrete behavioral descriptions.

### LIMITATIONS IN THE WAY PROTOTYPE CATEGORIZATION IS OPERATIONALIZED IN *DSM-IV*

The *DSM-IV* algorithms for diagnosing PDs, which involve counting the number of criteria met and applying diagnostic thresholds, represent one possible way of operationalizing prototype classification (which we hereafter refer to as the *count/cutoff method* of diagnosis). This was a substantial advance over prior approaches that implicitly or explicitly assumed a classical (defining features) model of categorization. The count/cutoff method of diagnosis, however, actually represents a mixed model of classification, in two senses. First, perhaps the most central feature of a prototype approach to classification is the recognition that for many categorization tasks, dichotomous classification (i.e., a case is either a member of a category or it is not) is inappropriate because the construct is a fuzzy set. (The same is true for dichotomous, present/absent diagnostic criteria.) Yet the *DSM* retains a categorical diagnostic system that requires clinicians and researchers to assume just the opposite (e.g., that a patient either has or does not have narcissistic PD). Second, although the *DSM* relies on polythetic decision rules, it delineates a list of features presumed in some combination to *define* the disorder rather than *exemplify* its most important features. This has led to a confusion between a set of constructs (prototypes) and their operationalization or measurement. Whereas the intent of providing a list of features was to provide a guide for reliable assessment of the underlying constructs, the constructs have become defined (reified) as the presence of a certain number of criteria selected out of the universe of criteria that might have been used to describe the disorder.

This method of operationalizing prototype diagnosis has several limitations. First, an accumulating body of research suggests that personality characteristics, including PD features, tend to be distributed continuously rather than categorically (Widiger, 1993; Widiger & Clark, 2000). Categorical diagnoses perform poorly relative to dimensional diagnoses most of the time in PD research, which has led many PD researchers to analyze their data primarily dimensionally (e.g., Lenzenweger, 1999). The dimensional distribution of many aspects of personality does not preclude the possibility that some personality characteristics can have categorically distinct variants (e.g., a heart attack is qualitatively different from a panic attack despite commonalities in subjective perception of symptoms). Taxometric analysis can be particularly useful in identifying such cases (Meehl, 1995; Waller & Meehl, 1998). There is little reason to believe, however, that the cutoffs currently used in *DSM-IV* optimally identify taxonic cases even in disorders such as schizotypal PD for which data support the likelihood of taxonicity (see Korfine & Lenzenweger, 1995).

Clinically, categorical diagnoses fail to capture the pathology of most patients with personality pathology, who fall short of diagnostic thresholds despite having enduring,

maladaptive personality patterns such as repeatedly getting into unsatisfying relationships or having difficulty regulating self-esteem (Westen & Arkowitz-Westen, 1998). A significant challenge in moving to dimensional models, however, is to devise a way of describing the range of personality pathology that is clinically useful and parsimonious. Dimensional diagnosis using trait models, for example, tends to be cumbersome (e.g., "The patient is a 2 on conscientiousness, a 1 on agreeableness, and a 5 on the anger facet of neuroticism," versus "The patient has antisocial features").

Second, the use of lists of criteria assessed independently for their presence or absence places limits on the number of criteria that can be included for each disorder, which in turn renders the development of psychologically rich, internally consistent, and nonredundant diagnostic criterion sets psychometrically impossible (see Westen & Shedler, 1999a, 2000). Axis II includes 10 disorders with eight to nine criteria each. To the extent that several disorders share features or have latent traits in common, such as negative affectivity, lack of empathy, or externalizing pathology, criterion sets with eight to nine criteria each will inevitably produce problematic rates of comorbidity. The only way to reduce this artifactual comorbidity is to gerrymander diagnostic criteria to minimize diagnostic overlap at the expense of validity. Lack of empathy, for example, is empirically central to antisocial PD (see Shedler & Westen, 2004; Westen & Shedler, 1999a), yet it is not a diagnostic criterion, because including it would lead to undesirable comorbidity with narcissistic PD. Increasing the number of diagnostic criteria to 15 or 20 would minimize the problem, because two or three shared criteria among 20 would have little impact on comorbidity (as opposed to two or three of nine). However, this would require that clinicians and researchers make present/absent determinations about 200 criteria rather than the current 80, which would clearly be unwieldy. We do not see a way of resolving this problem using the current format of Axis II.

Third, the use of brief criterion lists selected atheoretically runs counter to naturally occurring cognitive processes that occur in most classification tasks. Research in cognitive science suggests that people do not typically identify objects as members of categories by simply counting the number of features in common. Rather, they develop rich concepts or mental models that reflect an understanding of causal relations and patterns of covariation among these features (Ahn & Kim, 2000). This renders the learning of non-causal lists of diagnostic criteria difficult and readily overridden by richer mental models that assume interrelations among diagnostic features. Thus, when a clinician identifies a tendency to become enraged in the face of slights in a patient who also shows signs of grandiosity, he or she begins to frame implicit and explicit hypotheses about the way the patient regulates self-esteem. The combination of sensitivity to slights and grandiosity lends what the philosopher and cognitive scientist Paul Thagard (1989) refers to as "explanatory coherence" to an emerging formulation of the patient as having narcissistic features or dynamics. Although such inferences, like all top-down or theory-driven cognitive processes, can render clinicians, like all human information processors, prone to confirmatory biases, inferences such as these are in fact central to human cognition and to our capacity to form mental models, make accurate probabilistic generalizations, and frame and test hypotheses.

Fourth, clinicians express considerable dissatisfaction with Axis II, do not use the cumbersome diagnostic algorithms specified in the manual to make diagnoses in clinical practice, and tend to make unreliable diagnoses even when compelled to do so (e.g., Lewczyk, Garland, Hurlburt, Gearity, & Hough, 2003; Morey & Ochoa, 1989; Rush et al., 2003; Westen, Shedler, Durrett, Glass, & Martens, 2003). Although we might explain the failure of clinicians to use the algorithms specified in the *DSM* in terms of failures in clinical judgment, part of the problem may lie in the fact that clinicians, like other information

processors, tend to be guided in their cognitive processes by their *goals*. If clinicians of all theoretical orientations and disciplines gravitate toward diagnostic practices other than those prescribed in the diagnostic manual, which empirically they do (see, e.g., Westen & Arkowitz-Westen, 1998), it may be that the manual as currently configured is not optimally serving their purposes.

In fact, *DSM-III* emerged from the Research Diagnostic Criteria (RDC; Feighner et al., 1972) of the 1970s, whose goal was explicitly to allow researchers to generate consensual definitions of disorders that would allow comparability of samples across sites. The assumption in importing diagnostic decision rules like those in the RDC into the *DSM* was that the same diagnostic procedures useful for researchers would be useful for clinicians.

The goals of clinical and research diagnosis of personality clearly overlap, but they also diverge in some important respects. Researchers need to identify homogeneous diagnostic groups and hence require consensus as to what "counts" as obsessive-compulsive PD, even if based on relatively arbitrary decision rules. Although clinicians also presumably strive for accuracy in their diagnostic judgments (e.g., whether a patient appears schizoid), they tend to focus on whether and in what circumstances a patient is functionally impaired in a particular way. Whether the patient crosses or fails to cross a particular diagnostic threshold generally has little impact on treatment decisions; from a clinical point of view, it is generally enough to know that the patient is narcissistic or has borderline features, without knowing whether he or she meets four criteria (and hence is healthy) or five (and hence is ill). To our knowledge, no one has empirically demonstrated any treatment significance of any of the Axis II cutoffs. Thus, clinicians may not be behaving irrationally in ignoring *DSM* decision rules in personality diagnosis.

## **RETHINKING PROTOTYPE DIAGNOSIS: A PROTOTYPE MATCHING ALTERNATIVE**

As applied to psychopathology, scientific classification involves two processes (see Sokal, 1974). The first is taxonomy, the development of diagnostic classes or groupings (categories, dimensions, or prototypes). The second is diagnosis, the application of those diagnostic groupings to individual cases. For several years, Westen, Shedler, and colleagues have been pursuing a prototype-matching approach to diagnosis that addresses both questions of taxonomy and of diagnosis (Westen, Heim, Morrison, Patterson, & Campbell, 2002; Westen & Shedler, 1999a, 1999b, 2000). We describe here, first, a proposal for personality diagnosis in clinical practice that represents an alternative to the count/cutoff approach, which we believe is more faithful to the prototype model of classification underlying the *DSM*. We then briefly describe ways of selecting the prototypes (taxonomy), ranging from methods that retain the diagnoses currently included on Axis II to others that are more strictly empirical. We then conclude this section by describing some preliminary data comparing prototype diagnosis with diagnosis using *DSM-IV* decision rules.

### **Implementing Personality Diagnosis: An Alternative to the Count/Cutoff Approach**

The approach to diagnosis we have proposed presents clinicians with a set of personality prototype descriptions, each comprising 15 to 20 statements about the patient's patterns of thought, feeling, motivation, self-regulation, and interpersonal functioning (Westen & Shedler, 2000; Westen et al., 2002). The prototypes are psychologically rich, including

statements about both manifest behaviors and readily inferable mental states. Instead of presenting the statements in list form in relatively random order, which minimizes the ability of clinicians to form *mental* prototypes of the disorders in the diagnostic manual, the prototypes are paragraph-long descriptions, with criteria grouped conceptually to maximize the formation of coherent mental models or representations. (The decision to move from list to paragraph form emerged in discussions with Michael First and Robert Spitzer, whose advice we gratefully acknowledge.)

The task of the diagnostician is to evaluate the extent to which the patient matches each personality prototype using a five-point rating system (Table 13.1). This system capitalizes on the advantages of dimensional diagnosis while simultaneously generating categorical diagnoses that can be useful clinically for summary communication. Patients receiving a score of 4 or 5 are considered to “have” the disorder (“caseness”); patients who receive a score of 3 are considered to have significant “features” of the disorder. The method parallels diagnosis in many other areas of medicine, where variables such as blood pressure are measured on a continuum, but physicians by convention refer to values in certain ranges as “borderline” or “high.”

A guiding assumption of this approach is that the use of the diagnostic manual and the reliability of clinical diagnosis are likely to increase if clinicians are not forced to make dichotomous (present/absent) decisions about either diagnoses treated as a whole (one of the key flaws in *DSM-II*) or diagnostic criteria treated individually and then combined using thresholds that vary across diagnoses (*DSM-III* through *DSM-IV*). The task of the diagnostician using this prototype-matching method is, instead, to examine each diagnostic prototype

**Table 13.1 Empirically Derived Narcissistic Prototype**

*Narcissistic Personality Disorder*

Patients who match this prototype have fantasies of unlimited success, power, beauty, talent, brilliance, and so on. They appear to feel privileged and entitled, and expect preferential treatment. They have an exaggerated sense of self-importance, and believe they can only be appreciated by, or should only associate with, people who are high-status, superior, or otherwise “special.” Individuals who match this prototype seek to be the center of attention, and seem to treat others primarily as an audience to witness their own importance, brilliance, beauty, and so on. They tend to be arrogant, haughty, or dismissive; to be competitive with others (whether consciously or unconsciously); to feel envious; and to think others are envious of them. They expect themselves to be “perfect” (e.g., in appearance, achievements, performance). They are likely to fantasize about finding ideal, perfect love. They tend to lack close friendships and relationships; to feel life has no meaning; and to feel like they are not their true selves with others, so that they may feel false or fraudulent.

1. Little or no match (description does not apply).
2. Some match (patient has *some features* of this disorder).

|   |           |
|---|-----------|
| 3. Moderate match (patient has <i>significant features</i> of this disorder).     | Features  |
| 4. Good match (patient <i>has</i> this disorder; diagnosis applies).              | Diagnosis |
| 5. Very good match (patient <i>exemplifies</i> this disorder; prototypical case). |           |

taken as a whole, or as a gestalt, and to gauge the extent to which the patient's symptom picture matches the prototype. As should be clear, this approach to diagnosis differs from the method prescribed in *DSM-IV* in format but not in spirit; the task of the diagnostician is still to diagnose the patient using a set of personality diagnoses. What is different is simply how the clinician gauges whether (and to what extent) the diagnosis fits the patient.

This method has several advantages. First, it is simple, efficient, and parsimonious. Rather than making present/absent determinations on each of roughly 80 diagnostic criteria, counting them, and applying cutoffs, the clinician simply rates the extent to which the patient matches each prototype as a whole. The default is "1" (little or no match), so that clinicians do not need to read through or rate criteria that are clearly irrelevant to a given patient. Second, because this method is dimensional, it captures subthreshold pathology (i.e., ratings of 2 or 3, which indicate some resemblance to the prototype). (We have derived a psychological health prototype as well, which gauges degree of personality health/sickness and allows clinicians to assess strengths and measure progress over time.) Third, this method produces a diagnostic profile, similar to a Minnesota Multiphasic Personality Inventory (MMPI) profile, which describes the extent to which the patient matches each prototype. This provides substantially more information than simple present/absent determinations. The profile also translates directly into language that is meaningful to clinicians (e.g., a 4 on narcissistic and 3 on histrionic translates to "the patient has narcissistic PD with histrionic features"), hence solving many of the dilemmas entailed by moving to dimensional trait systems. Fourth, the procedure more closely reflects the cognitive processes that people naturally use in categorization tasks and, hence, is more likely to be implemented in clinical practice. Finally, as we suggest later, this method should reduce comorbidity—even using the categories in *DSM-IV*, which have built-in redundancies and conceptual overlap—because clinicians are rating gestalts rather than isolated symptoms.

### Deriving Personality Prototypes

The obvious next question is how to derive the prototypes to be used in such a system. This could be done in three ways. The first is simply to weave the eight or nine criteria for each Axis II disorder into paragraph form. This has the advantage of being maximally continuous with *DSM-IV*. The corresponding disadvantage, as noted earlier, is that eight to nine items are unlikely to describe a relatively distinct personality style, particularly when PDs can be expected to share traits with one another. As Millon and others have observed, the current criterion sets do not systematically cover the domains of functioning outlined in the preamble to *DSM-IV*, let alone domains clinicians and researchers might hypothesize using more systematic models of personality (see Westen, 1998; Westen & Shedler, 1999a).

A second approach is to identify the central psychological features of the PDs as defined in Axis II by collecting personality data on a sample of patients with each *DSM-IV* PD and developing prototypes of personality characteristics modal in patients with each disorder. A third approach, more empirical still, does not assume the current Axis II diagnoses. Rather, it identifies prototypes of naturally occurring personality styles using statistical procedures designed to find commonalities among groups of patients with similar personality profiles. For several years, Westen, Shedler, and colleagues have pursued these latter two approaches (Shedler & Westen, 2004; Westen & Shedler, 1999a, 1999b). We briefly describe those efforts here.



## Identifying Prototypes Using the SWAP-200 Q-Sort

To identify PD prototypes, Shedler and Westen developed the SWAP-200, a Q-sort instrument designed for taxonomic research and assessment of personality pathology. (We are currently norming the second edition of the instrument, the SWAP-II.) In designing the SWAP, we drew substantially on the work of Block (1971, 1978), who pioneered both the use of Q-sort techniques for personality assessment and the development of personality prototypes in normal populations. A Q-sort is a ranking procedure, in which the observer sorts items into piles, from least to most descriptive of the person. (On the advantages and limitations of Q-sorts for measuring clinical descriptions, see Block, 1978.) Following Block, our goal was to provide clinicians with a standard "language" with which to make their observations, so that we could use data from experienced clinical observers to generate reliable formulations of a case or disorder. The SWAP presumes a clinically experienced observer, who has either observed the patient clinically over an extended period or has administered a systematic, narrative-based interview, the Clinical Diagnostic Interview (Westen & Muderrisoglu, 2003).

The SWAP-200 includes 200 personality descriptors derived from multiple sources, including *DSM* diagnostic criteria, relevant clinical and empirical literatures, research on normal personality traits, clinical experience, videotaped interviews, and input from hundreds of clinicians who piloted initial versions. The items are written in jargon-free English close to the data (e.g., "Tends to be passive and unassertive"), so that they can be used by clinicians of any theoretical orientation. Items that require inferences about internal processes are written in simple and straightforward language (e.g., "Tends to blame others for own failures or shortcomings; tends to believe his or her problems are caused by external factors" or "Tends to see own unacceptable feelings or impulses in other people instead of in him/herself").

Although the item set includes statements that reflect all of the Axis II criteria from *DSM-IV* (and many from prior editions of the *DSM*), it differs from Axis II in three primary ways. First, it includes items that describe subtle, clinically important aspects of personality such as motives and affect regulation strategies (e.g., defenses) that were not included in Axis II because of concerns that they could not be measured reliably. Second, it addresses the range of personality pathology, from relatively healthy (including psychological strengths) to relatively severe. Third, to maximize content validity in item generation, we used a model of personality that specified domains of functioning (Westen, 1998) to ensure that we did not miss psychologically important processes not currently linked to any specific Axis II disorder. We refined the item set over several years using standard psychometric procedures, soliciting feedback from hundreds of clinicians using the instrument, and eliminating or combining items with redundancy or limited variance.

A growing body of evidence supports the reliability and validity of the SWAP. Research has shown high correlations between SWAP-200 descriptions made by treating clinicians and independent interviewers, between independent observers reviewing recorded interviews, and between clinician ratings and self-reported antisocial and borderline traits assessed by self-report (Bradley, Hilsenroth, & Westen, 2003; Shedler & Westen, 1998; Westen & Muderrisoglu, 2003). Scores derived from the SWAP-200 and its adolescent version (the SWAP-200-A) correlate with a range of criterion measures, such as history of suicide attempts, arrests, psychiatric hospitalizations, social support, Global Assessment of Functioning, and family and developmental history variables (Dutra, Campbell, & Westen, 2004; Nakash-Eisikovits, Dierberger, & Westen, 2002; Westen & Shedler, 1999a; Westen et al., 2003).

*Deriving Prototypes of the DSM-IV Axis II Disorders*

To derive prototypes of the disorders currently represented in *DSM-IV*, we collected data from a random national sample of experienced clinicians ( $N = 530$ ), each of whom described a patient with one of the Axis II disorders (Shedler & Westen, in press; Westen & Shedler, 1999a). (To maximize comprehensiveness, a subgroup of these clinicians described instead a patient with a disorder included in the appendix to *DSM-IV* or in a prior edition of the manual.) This procedure yielded data on 26 to 43 patients with each Axis II disorder. We then averaged, or aggregated, the 200-item profiles of patients sharing a diagnosis to derive composite personality descriptions of each disorder. An important psychometric benefit of aggregation is that the idiosyncrasies of individual patients and clinicians (i.e., error variance) tend to cancel out in adequately sized samples (Horowitz, Inouye, & Siegelman, 1979; Rushton, Brainerd, & Preisley, 1983). This method of aggregating descriptions does not assume the reliability of any individual clinician's description of a patient. Rather, following Block (1978), we assess the reliability of composite descriptions using coefficient alpha. The logic is the same as computing the reliability of a psychometric scale, except that we are interested in the extent to which 200-item description of patients are consistent across observers, rather than the extent to which a set of items is internally consistent. Coefficient alpha for all composites was  $> .80$ , suggesting that we were, in fact, able to identify reliably shared features of all the *DSM-IV* PDs.

Thus, a composite description of patients with a given PD should identify the core psychological features shared by these patients. Because the item set of the SWAP-200 includes all the Axis II criteria from *DSM-IV*, we are able to determine, using this method, whether the criteria in the diagnostic manual provide the best criteria for each disorder or whether some other combination of criteria might provide a more empirically accurate description.

From these data, we can derive two kinds of composite descriptions of patients with each PD. The first most closely approximates the concept of a prototype (i.e., the "average" patient with the disorder) and is derived by taking the average item score for each item for patients who share a diagnosis and displaying the items in descending order of magnitude (i.e., of centrality to the construct). Table 13.2 presents the prototype for borderline PD aggregated in this way (Westen & Shedler, 1999a).

A second method more closely approximates the concept of an ideal type, that is, a portrait of the disorder that is somewhat idealized, which emphasizes its *distinct* features (i.e., those features that distinguish it from other PDs). Rather than aggregating the raw SWAP item scores, as before, we first standardize the SWAP items across patients, so that all 200 items have a mean of 0 and a standard deviation of 1. We then average item scores (Z-scores) across all patients who share a diagnosis to generate a *standardized prototype*. This second method reduces the centrality of items that are highly descriptive of the average patient with a given disorder but also highly descriptive of the average patient in the sample. Table 13.3 presents the composite standardized description of borderline PD aggregated this way.

As seen by comparing Tables 13.2 and 13.3, the two approaches yield similar but not identical diagnostic descriptions. The advantage of compositing the raw scores is that doing so identifies features of the disorder that might readily be overlooked, such as the desperate pain and despondency of borderline patients. This intense psychological pain is not reflected in the Axis II criteria for the disorder but likely plays a causal role in generating many features of the disorder, such as suicide attempts. The advantage of compositing Z-scores, in contrast, is that doing so provides a more pure description of the central features

**Table 13.2 Borderline Prototype Based on Average Item Scores**

| SWAP Item   | Mean Item Rank |
|---|----------------|
| Emotions tend to spiral out of control, leading to extremes of anxiety, sadness, rage, excitement, etc.   | 5.05           |
| Tends to feel unhappy, depressed, or despondent.  | 4.88           |
| Tends to feel s/he is inadequate, inferior, or a failure.   | 4.42           |
| Tends to fear s/he will be rejected or abandoned by those who are emotionally significant.  | 4.40           |
| Is unable to soothe or comfort self when distressed; requires involvement of another person to help regulate affect.                                | 4.28           |
| Tends to feel helpless, powerless, or at the mercy of forces outside his/her control.   | 4.19           |
| Tends to be angry or hostile (whether consciously or unconsciously).  | 4.05           |
| Tends to be anxious.  | 4.05           |
| Tends to react to criticism with feelings of rage or humiliation.   | 3.95           |
| Tends to be overly needy or dependent; requires excessive reassurance or approval.  | 3.93           |
| Tends to feel misunderstood, mistreated, or victimized.   | 3.79           |
| Tends to become irrational when strong emotions are stirred up; may show a noticeable decline from customary level of functioning.                  | 3.74           |
| Tends to get into power struggles.  | 3.56           |
| Tends to "catastrophize"; is prone to see problems as disastrous, unsolvable, etc.  | 3.51           |
| Emotions tend to change rapidly and unpredictably.  | 3.51           |
| Lacks a stable image of who s/he is or would like to become (e.g., attitudes, values, goals, and feelings about self may be unstable and changing). | 3.49           |
| Tends to feel like an outcast or outsider; feels as if s/he does not truly belong.  | 3.47           |
| Tends to express intense and inappropriate anger, out of proportion to the situation at hand.   | 3.40           |

that distinguish borderline patients from other PD patients and, hence, may, as a prototype (or ideal type), lead to reduced comorbidity, even though it is not quite as faithful to the empirical reality. Whether one or the other of these methods is superior or whether they should be combined in some way is an empirical question, which we are currently exploring.

*Deriving Diagnostic Groupings Empirically*

The approach described thus far assumes the diagnostic groupings (disorders) delineated in *DSM-IV*, but it attempts to generate psychologically richer, more clinically and empirically accurate personality descriptions for each disorder. A more thoroughgoing empirical approach to identification of prototypes does not assume either the categories or criteria currently outlined in *DSM-IV* but instead attempts to identify diagnostic groupings empirically. To generate more thoroughly empirical prototypes of this sort, we used SWAP data from the same large national sample to identify naturally occurring groups of patients with shared personality characteristics, using a clustering procedure called *Q-factor analysis* (also called inverse factor analysis). Q-factor analysis is a person-centered, rather than variable-centered, procedure that groups *people* rather than *items* based on their common variance. Using this approach, we derived 11 naturally occurring personality prototypes, most of which resemble current Axis II disorders but some of which do not (Westen

**Table 13.3** Borderline Prototype Based on Standardized Item Scores

| SWAP Item  | Mean<br>Z-Score |
|--|-----------------|
| Tends to make repeated suicidal threats or gestures, either as a "cry for help" or as an effort to manipulate others.  | 1.14            |
| Tends to engage in self-mutilating behavior (e.g., self-cutting, self-burning, etc.).  | 1.09            |
| Emotions tend to change rapidly and unpredictably.   | 1.08            |
| Emotions tend to spiral out of control, leading to extremes of anxiety, sadness, rage, excitement, etc.  | .93             |
| Struggles with genuine wishes to kill him/herself.   | .83             |
| Tends to enter altered, dissociated state of consciousness when distressed (e.g., the self or the world feels strange, unfamiliar, or unreal).   | .82             |
| Interpersonal relationships tend to be unstable, chaotic, and rapidly changing.  | .70             |
| Is unable to soothe or comfort self when distressed; requires involvement of another person to help regulate affect.   | .65             |
| Tends to become irrational when strong emotions are stirred up; may show a noticeable decline from customary level of functioning.   | .65             |
| Tends to elicit extreme reactions or stir up strong feelings in others.  | .64             |
| Manages to elicit in others feelings similar to those he or she is experiencing (e.g., when angry, acts in such a way as to provoke anger in others; when anxious, acts in such a way as to induce anxiety in others).             | .64             |
| Tends to act impulsively, without regard for consequences.   | .64             |
| Tends to become attached quickly or intensely; develops feelings, expectations, etc. that are not warranted by the history or context of the relationship.   | .61             |
| Appears to fear being alone; may go to great lengths to avoid being alone.   | .55             |
| Tends to express intense and inappropriate anger, out of proportion to the situation at hand.  | .54             |
| Repeatedly re-experiences or re-lives a past traumatic event (e.g., has intrusive memories or recurring dreams of the event; is startled or terrified by present events that resemble or symbolize the past event).                | .53             |
| Has uncontrolled eating binges followed by "purges" (e.g., makes self vomit, abuses laxatives, fasts, etc.); has bulimic episodes.   | .52             |
| Tends to oscillate between undercontrol and overcontrol of needs and impulses (i.e., needs and wishes are expressed impulsively and with little regard for consequences, or else disavowed and permitted virtually no expression). | .52             |
| Expresses emotion in exaggerated and theatrical ways.  | .52             |
| Tends to get drawn into or remain in relationships in which s/he is emotionally or physically abused.  | .50             |

& Shedler, 1999b). (We have also used conventional factor analysis to derive traits from the SWAP-200 but do not discuss these further here; see Shedler & Westen, in press.)

Table 13.4 describes the empirically derived prototype that best maps onto the borderline construct and has replicated across multiple samples, both adult and adolescent (Shedler & Westen, 1998; Westen & Shedler, 1999b; Westen et al., 2003; Zittel & Westen, 2004). As shown in the table, this prototype describes a disorder characterized by intense affective dysregulation and desperate efforts to escape from painful affective states. Unlike the borderline diagnosis in *DSM-IV*, this diagnosis is uncorrelated with

**Table 13.4 Empirically Derived Borderline Prototype**

| Item  | Factor Score<br>(standard deviations) |
|---|---------------------------------------|
| Emotions tend to spiral out of control, leading to extremes of anxiety, sadness, rage, excitement, etc.   | 3.21                                  |
| Struggles with genuine wishes to kill him/herself.  | 2.89                                  |
| Is unable to soothe or comfort self when distressed; requires involvement of another person to help regulate affect.  | 2.76                                  |
| Tends to feel life has no meaning.  | 2.58                                  |
| Tends to make repeated suicidal threats or gestures, either as a "cry for help" or as an effort to manipulate others.   | 2.55                                  |
| Tends to feel unhappy, depressed, or despondent.  | 2.47                                  |
| Tends to "catastrophize"; is prone to see problems as disastrous, unsolvable, etc.  | 2.42                                  |
| Tends to become irrational when strong emotions are stirred up; may show a noticeable decline from customary level of functioning.  | 2.16                                  |
| Tends to be preoccupied with death and dying.   | 2.15                                  |
| Tends to feel empty or bored.   | 2.05                                  |
| Appears to find little or no pleasure, satisfaction, or enjoyment in life's activities.   | 2.00                                  |
| Tends to be overly needy or dependent; requires excessive reassurance or approval.  | 1.94                                  |
| Repeatedly re-experiences or re-lives a past traumatic event (e.g., has intrusive memories or recurring dreams of the event; is startled or terrified by present events that resemble or symbolize the past event). | 1.85                                  |
| Tends to engage in self-mutilating behavior (e.g., self-cutting, self-burning, etc.).   | 1.82                                  |
| Tends to be angry or hostile (whether consciously or unconsciously).  | 1.70                                  |
| Tends to feel like an outcast or outsider; feels as if s/he does not truly belong.  | 1.70                                  |
| Tends to feel misunderstood, mistreated, or victimized.   | 1.70                                  |
| Tends to feel s/he is inadequate, inferior, or a failure.   | 1.69                                  |
| Emotions tend to change rapidly and unpredictably.  | 1.55                                  |
| Tends to feel helpless, powerless, or at the mercy of forces outside his/her control.   | 1.44                                  |
| Tends to enter altered, dissociated state of consciousness when distressed (e.g., the self or the world feels strange, unfamiliar, or unreal).  | 1.32                                  |
| Tends to fear s/he will be rejected or abandoned by those who are emotionally significant.  | 1.32                                  |
| Perception of reality can become grossly impaired under stress (e.g., may become delusional).   | 1.31                                  |

near-neighbor Axis II disorders such as antisocial and histrionic. The advantage of empirically derived prototypes of this sort is that they reflect the characteristics of patients seen in actual clinical practice as grouped empirically using a statistical procedure (factor analysis, with the matrix inverted so that patients, rather than items, are factored) designed to minimize diagnostic redundancy. Such empirically derived groupings need to be well replicated, however, before being considered a viable alternative to the current classification of PDs.

For research purposes, regardless of which method we use to generate personality prototypes using the SWAP, a patient's diagnosis (dimensional score) reflects the correlation

between his or her 200-item profile (arrayed as a column of data) and a set of diagnostic prototypes (also arrayed as a column of data). This method nicely operationalizes prototype matching and is true to the construct of personality disorder, which refers to a *constellation* of personality characteristics that cut across many functional domains, rather than a set of eight or nine specific trait indicators. For most clinical purposes, the simple 1 to 5 rating system described earlier is likely to suffice, yielding data that are psychometrically somewhat less reliable, but using a process that is considerably more cognitively economical, taking only one or two minutes versus approximately 45 to make a proper Axis II diagnosis.

### *How Does This Prototype Matching Approach Fare Empirically?*

In several studies, we have examined the reliability and validity of SWAP prototype diagnosis using both the *DSM* prototypes (composite descriptions of patients with a *DSM*-defined PD) and the empirically derived prototypes. Both approaches have demonstrated substantial validity and reliability. For example, interrater reliability for both sets of diagnoses averages  $> .80$  (Pearson's correlation); SWAP PD scores obtained by interview correlate  $> .80$  with PD scores obtained from the treating clinician's description of the patient using the SWAP (blind to interview results); and borderline and antisocial diagnosis made using the SWAP correlate in predicted ways with borderline and antisocial scales from well-validated self-report instruments (Bradley et al., 2003; Westen & Muderrisoglu, 2003).

We have recently completed our first test of the simple prototype rating system described earlier as an alternative in clinical practice to the *DSM* count/cutoff approach, focusing on the four Cluster B disorders (antisocial, borderline, histrionic, and narcissistic; Westen, Shedler, & Bradley, 2004). We chose the Cluster B disorders because they are the most studied, have the best-known correlates, and show high comorbidity. A random national sample of experienced psychiatrists and clinical psychologists ( $N = 291$ ) described a randomly selected patient in their care. Clinicians completed an Axis II checklist, which provided present/absent data on each of the *DSM-IV* PDs, which we used to generate both categorical *DSM-IV* diagnoses (using *DSM-IV* decision rules) and dimensional diagnoses (number of symptoms met for each disorder). Half of the clinicians then diagnosed their patients using prototypes of the *DSM-IV* PDs (hereafter, *DSM* prototypes). The other half diagnosed their patients using prototypes derived empirically using Q-factor analysis (hereafter, empirical prototypes). Clinicians then completed a number of ratings comparing the *DSM* diagnostic method with the prototype approach they had used on several measures of clinical efficiency and utility.

We compared the two prototype systems (*DSM* and empirical) to the count/cutoff approach on three sets of criteria used to test the adequacy of a diagnostic system: diagnostic redundancy (comorbidity), validity (in this case, ability to predict ratings of adaptive functioning, treatment response, and variables relevant to etiology), and clinical utility (clinicians' ratings of ease of use, comprehensiveness, informational value, and utility in communicating with other clinicians). To control for the possibility that any observed differences between the prototype and count/cutoff approaches might simply reflect the differences between categorical and dimensional data, we compared the two prototype systems to both categorical (present/absent) and dimensional (number of symptoms met) *DSM-IV* diagnoses.

The two prototype systems performed as well or better than both categorical and dimensional *DSM-IV* diagnosis on each of the three sets of criterion variables, with the empirical prototypes generally faring the best. Prototype diagnosis yielded substantially reduced diagnostic overlap. The median intercorrelations among the *DSM-IV* PDs treated dimensionally (number of symptoms per disorder) was  $r = .47$ . The median intercorrelations for the

two prototype approaches were substantially lower:  $r = .28$  for the *DSM* prototypes and  $r = .17$  for the empirical prototypes.

Did this reduced comorbidity not come at the expense of validity; that is, did each disorder carry less information when we eliminated regions of overlap? To assess the validity of the different diagnostic methods, we compared the correlations between each set of diagnoses and ratings of adaptive functioning, treatment response (to both psychotherapy and antidepressant medication), developmental and family history variables known to be associated with antisocial PD and borderline PD, and family history variables likely to show associations with antisocial and borderline PDs. (Correlates of histrionic and narcissistic PD are largely unknown, so we did not specify any a priori hypotheses with respect to these disorders.) The four diagnostic methods (*DSM-IV* categorical, *DSM-IV* dimensional, *DSM* prototypes, and empirical prototypes) correlated similarly with measures of adaptive functioning and etiology, such as global functioning, history of arrests, history of suicide attempts, and history of familial internalizing and externalizing pathology; however, *DSM-IV* categorical diagnosis consistently fared the worst and the empirical prototypes, the best in predicting relevant criterion variables. Of particular note, given the importance of prognosis and treatment response in validating a diagnostic method (Robins & Guze, 1970), neither categorical nor dimensional *DSM-IV* diagnosis predicted medication response, whereas both prototype systems did.

Clinicians also preferred both prototype rating approaches to the count/cutoff approach in *DSM-IV* on every measure of clinical utility. In general, 70% of clinicians rated the prototype systems more clinically useful than *DSM* diagnosis, 20% viewed the systems as about the same, and only 10% preferred the more familiar *DSM* algorithms.

We now illustrate the use of this prototype matching approach to diagnosis using data from a patient, whom we call Ms. Y, chosen from among the 1,200 patients in a study just completed.

## CASE STUDY

Ms. Y is a 30-year-old, African American female with a college education who had been in psychotherapy for three months at the time the treating clinician described her. The clinician gave her an Axis I diagnoses of dysthymic disorder and eating disorder NOS and a GAF score of 50, indicating moderate impairment. As part of the assessment, the clinician completed a randomly ordered checklist of all of the symptoms comprising Axis II. When we applied *DSM-IV* diagnostic algorithms, the patient met criteria for borderline, histrionic, and dependent PDs. We also asked the clinician to rate this patient on each of the empirical prototypes of the Cluster B PDs using the rating system described earlier. The clinician rated the patient as meeting criteria for borderline PD (a rating of 5) and having significant features of histrionic PD (a rating of 3). She gave the patient ratings of 2 and 1, respectively, for narcissistic and antisocial PD. On a questionnaire that addresses developmental and family history variables, the clinician reported a history of sexual and physical abuse in childhood and rated the patient's childhood environment as low in family stability and warmth.

## Narrative Description

The reporting clinician placed the following items from the SWAP-II in the top three (most descriptive) piles (5, 6, or 7). We reprint the items here verbatim with only minor grammatical changes to aid the flow of the text.

Ms. Y struggles with genuine wishes to kill herself and tends to make repeated suicidal threats or gestures, either as a "cry for help" or as an effort to manipulate others. She tends to feel unhappy, depressed, or despondent. She has a pervasive sense that someone or something necessary for happiness (e.g., a relationship, youth, beauty, or success) has been lost forever. Although she has a limited or constricted range of emotions, her emotions can also change rapidly and unpredictably. She tends to alternate between undercontrol and overcontrol of needs and impulses (e.g., she sometimes acts on desires impulsively while at other times denying them entirely). When upset, she has trouble perceiving both positive and negative qualities in the same person at the same time and tends to see others in black or white terms (e.g., swinging from seeing someone as caring to seeing him or her as malevolent and intentionally hurtful). She tends to deny, disavow, or squelch her own realistic hopes, dreams, or desires to protect against anticipated disappointment. She expresses anger in passive and indirect ways, such as making mistakes, procrastinating, forgetting, or becoming sulky. In addition, she tends to use her psychological or medical problems to avoid work or responsibility.

Ms. Y's relationships tend to be unstable, chaotic, and rapidly changing. She tends to feel misunderstood, mistreated, or victimized, and to feel like an outcast or outsider. She is critical of others and tends to hold grudges and to dwell on insults or slights for long periods. She is simultaneously needy of, and rejecting toward, others (e.g., craves intimacy and caring but tends to reject it when offered). She becomes attached quickly and intensely, developing feelings, expectations, and so on that are not warranted by the history or context of the relationship. She fantasizes about finding ideal, perfect love, but also becomes attached to, or romantically interested in, people who are emotionally unavailable. She tends to have numerous sexual involvements (i.e., is promiscuous) and to choose sexual or romantic partners who seem inappropriate in terms of age and status. She also tends to feel guilty or ashamed about her sexual interests or activities.

Ms. Y is articulate and can express herself well in words, but her verbal statements seem incongruous with accompanying affect or incongruous with accompanying nonverbal messages. She tends to describe experiences in generalities and is reluctant to provide details, examples, or supporting narrative. Her beliefs and expectations seem cliché or stereotypical, as if taken from storybooks or movies.

Ms. Y has a disturbed or distorted body image. She appears conflicted about her racial or ethnic identity (e.g., undervalues and rejects, or overvalues and is preoccupied with, her cultural heritage). She is also afraid or conflicted about becoming like a parental figure about whom she has strong negative feelings.

### Discussion of Case

Two features of this case description are worthy of note. First, it is a rich depiction of the patient's character, which readily allows the reader to form a mental image of the patient and to "connect the dots" among multiple symptoms and personality characteristics. It is also suggestive of clinical hypotheses, such as potential links between her history of sexual abuse and her enduring sexual conflicts, concerns, and behaviors. This description seems to us much richer than a *DSM-IV* Axis II diagnosis.

Second, based on the SWAP-II description, it is readily apparent why the clinician saw Ms. Y as having primarily borderline PD, given the patient's suicidality, disturbed interpersonal relationships, and tendency to see people as all good or all bad or to shift her representations of them when upset. The patient also has a number of histrionic features, such as changeable emotions and promiscuous sexuality, although it is equally clear why the



clinician did not see the patient as primarily histrionic in her personality style. As compared to her diagnosis using the *DSM-IV* diagnostic algorithms, the prototype ratings are not marked by high comorbidity; rather, they offer a consistent, more integrated picture of her overall functioning than a simultaneous diagnosis of borderline, histrionic, and dependent PD. Although we did not obtain Cluster C prototype ratings and, hence, do not have a rating for dependent PD, it is clear from her SWAP profile that she would not receive a prototype rating  $> 2$  for dependent PD.

## CONCLUSION

We have described a prototype approach to personality diagnosis that we believe yields clinically rich and sophisticated yet psychometrically sound descriptions of personality pathology. It can be applied to patients whether or not they have a severe enough personality disturbance to be diagnosable using Axis II of *DSM-IV* and, hence, captures a broader range of pathology. The prototype rating system we described could be readily implemented, either in combination with the current set of diagnoses (i.e., changing only the method of diagnosis, from symptom counting to prototype matching) or in combination with empirically refined diagnostic groupings (i.e., changing both the taxonomy and the method of diagnosis). It not only reduces diagnostic overlap but also yields diagnostic judgments that better predict criterion variables than the *DSM-IV* diagnostic algorithms and appears to be substantially more user-friendly and useful from a clinical standpoint.

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