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On the Contributions of a Network Approach to Personality Theory and Research

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Abstract

Understanding personality structure and processes is one of the most fundamental goals in personality psychology. The network approach presented by Cramer et al. represents a useful path toward this goal, and we address two facets of their approach. First, we examine the possibility that it solves the problem of breadth, which has inhibited the integration of trait theory with social cognitive theory. Second, we evaluate the value and usability of their proposed method (qgraph), doing so by conducting idiographic analyses of the symptom structure of Borderline Personality Disorder.

The target article by Cramer and her colleagues (2012) represents some of the excellent work being dedicated to one of the most fundamental issues in personality psychology. Indeed, psychologists have long grappled with questions regarding the structure and functioning of personality.

Thus, we applaud the scope of Cramer et al.'s work, and we find much to like about it. For example, we appreciate the attention to differentiated components of personality (Furr, 2009a), the view that within-person associations are potentially-important ways in which people differ from each other (Fleeson, 2007; Furr, 2009b), and the importance of resolving apparent discrepancies between social cognitive and trait approaches to personality (Fleeson, 2001, 2004, 2012). Beyond these areas of shared interest, we are excited about two particularly novel and important contributions – one conceptual and one methodological.

The Problem of Breadth

Regarding the conceptual contribution, we are excited that Cramer et al. provide one plausible solution to the problem of breadth (or organization), which has plagued the resolution of social cognitive theories with trait-oriented research. Whole Trait Theory (Fleeson, 2001; 2012; Fleeson & Jolley, 2006;) argues that social-cognitive theory can provide an explanatory side of traits, that trait-oriented research provides a robust descriptive side of traits (e.g., the Big 5), and that these two sides are fused together into “whole” traits. However, one barrier to achieving this fusion is the problem of breadth – linking a narrowly-focused stimulus-response perspective with the apparent existence of broadly-defined trait dimensions. Specifically, Big 5 traits imply that traits are broad, encompassing a wide variety of behaviors (“response classes”, Ozer, 1986). For example, the Big 5 implies that people who are relatively bold are typically also relatively talkative. In contrast, social-cognitive explanations suggest that personality variables are narrowly-focused on specific behaviors – for example, there is no reason for high levels of boldness to be generally related to high levels of talkativeness, and bold individuals are just as likely to be relatively quiet as to be relatively talkative. This lack of breadth reflects the fact that social-cognitive personality variables are relatively narrow conditionals (Mischel, 2004), in

which behaviors are linked to specific triggering situations (e.g., a child reacts with boldness if approached by a peer but reacts with timidity if approached by an adult). From this perspective, there is no reason for a person's overall levels of any given behavior to be related to his or her levels of any other behavior; rather, the overall levels of a given behavior will depend on the chance distribution of conditionals and situations relevant to that behavior.

A resolution of these two apparently-competing perspectives must explain how narrow, situationally-conditional responses fuse or accrete into broader traits. Cramer et al.'s model implies one plausible explanation. Specifically, certain responses tend to cause other similar responses, so conditionals that lead to one behavior will tend to sequentially lead to the other related behaviors, resulting in the accretion of the local dispositions into broad traits. This is clearly not the only accretion mechanism – e.g., Wood and Hensler (2011) have proposed another potential mechanism, in which underlying, small-sized causes may affect multiple types of responses, and Allport suggested several additional mechanism (1937; Fleenor, 2012). Although the data have not yet been produced to test these potential accretion mechanisms, Cramer et al. make a strong case that their network mechanism is statistically consistent with the results of factor analyses revealing the Big 5.

Network Analysis as a Tool

Regarding the methodological contribution, we are excited about network analysis as a tool for discovering new insights, particularly in terms of within-person phenomena. Personality psychologists have long been interested in the structure and processes (or architecture and dynamics, if you prefer) characterizing an individuals' personality, and the proposed network methodology represents a promising path toward this goal.

To explore such possibilities, we used Cramer et al.'s qgraph package to examine the within-person structure of Borderline Personality Disorder (BPD). Psychiatric outpatient participants responded to 19 items reflecting symptoms of BPD, doing so (up to) five times a day for seven days (e.g., "In the last 2 hours, I had difficulty controlling my anger"). Although we are not experts in network analysis or in the use of R software, we obtained findings that can inform the heterogeneity problem in BPD – the question of whether BPD represents a single coherent disorder or a more differentiated disorder that might be highly idiosyncratic (Shevlin, Dorahy, Adamson, & Murphy, 2007; Skodol, Gunderson, Pfohl, Widiger, Livesley, & Siever, 2002).

Consider Figure 1, representing symptom co-occurrence in two participants. "Mitt's" symptom-network (Figure 1a) is characterized primarily by a "Self-oriented loss of reality" reflecting strong links between Emptiness, Unstable Self, Paranoia, Unstable Emotions, and Dissociation. Other symptoms may occur, but they do so in isolation from this cluster and from each other. In contrast, "Newt's" symptom-network is more broadly interconnected, with relatively strong links among most symptoms. Newt's experience seems to be (nearly) all-or-none, in that the experience of one symptom seems to correspond to almost all symptoms. Such network-based results demonstrate that heterogeneity (in at least one sense) does indeed exist, and they begin to reveal the nature of that heterogeneity. Of course, for fuller understanding, we must examine the levels of activation of each symptom, along with the patterning across a large number of participants. However, qgraph, with its visual and quantitative output, represents a potentially useful method for examining personological issues having both theoretical and applied implications.

On a more practical note, we should acknowledge some difficulty with the qgraph package. We were unable to coax qgraph into conducting several analyses in which we were interested, and we labored to understand and overcome problems that emerged. We solved

some problems, but we failed to solve others, and the qgraph reference manual was helpful in some instances but not all. Again, we acknowledge having only limited experience with R, and those with more familiarity will surely find qgraph to be more manageable than we did. We look forward to continued development in terms of user-friendliness and documentation, if perhaps only for the benefit of researchers new to R.

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Figure 1.

Individual Networks Among Symptoms of Borderline Personality Disorder. Rea = Reassure seeking, AAb=Avoid abandonment, UnR=Unstable relationship, VDe=Valuing& devaluing another, USf=Unstable sense of self, Idn=Identity confusion, LCl=Lack of control, Imp =Impulsive, Inj=Self-injury, Sui =Suicidal actions, SId=Suicidal ideation, UEm=Unstable emotions, Mdy=Moodiness, Hol=Feel hollow inside, Emp=Feel empty, Ang=Difficulty controlling anger, Tmp=Lost temper, Par =Paranoid ideation, Dis =Dissociation,