# Realism Affords HiTOP Explanatory Power

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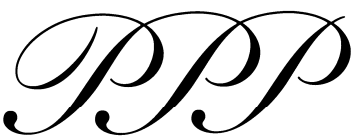

The goal of Hierarchical Taxonomy of Psychopathology (HiTOP) "is to accurately describe patterns of covariation among features of mental illness." In doing so, the HiTOP model is not intended to be causal model. Although the model may incorporate traits whose provenance or evidentiary basis is in latent variable models, the HiTOP model itself is not a latent variable model. An acceptable HiTOP model allows a mental health professional to construct an individualized HiTOP profile; it also serves as a starting point for inquiry regarding the etiology of mental illness. HiTOP models are intended to be atheoretical only in the sense that causal models do not inform them.

Symptoms and traits are placed at different levels in the expository model; the justification for scaffolding symptoms and traits in this way is that traits are considered dispositions over time (without temporal specificity) whereas symptoms exhibit during a specific interval of time. Disorders reside in the base of the model and are distinguished from maladaptive traits. Consider the following simplified hierarchy selected from the HiTOP model:

- Traits
  (disposition to behave, temporally nonspecific)
- Symptoms
  (behaviors at a specific time)
- Disorders

Despite the insistence that the HiTOP model is atheoretical in that the hierarchy is not intended to represent directed causal relations, it seems that, without appealing to causal hypotheses, the justification for the hierarchical arrangement is difficult to discern. For example, although differential temporal specificity is the stated rationale for placing symptoms and traits in different boxes, it is unclear why that difference would be a difference that is hierarchical. Additionally, if we assume that differential temporal specificity does warrant placing *traits and symptoms* at different levels, it does not seem that this is a how traits and disorders, or symptoms and disorders differ. In other words, the HiTOP model does not use differential temporal specificity to justify every assignment within the hierarchy. Hence, if symptoms are placed below traits for one reason and disorders are placed below symptoms (and traits) for a different reason, then it is unclear why

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disorders should not be on the same hierarchical level as traits, *mutatis mutandis*. The specific recommendation is not that hierarchical relations must be causal relations throughout the HiTOP model; however, the respective qualities two levels are that justify their relative positions within the hierarchy as well as the nature of the relation itself (causal, mathematical, level of abstraction, etc.) should be specified. Perhaps the model is silent in this regard to allow for the possibility that the relations between the levels may vary depending on to the mental condition under consideration. Such heterogeneity, however, would possibly undermine any specific, pretheoretical hierarchical arrangement including that currently represented in the HiTOP model.

A commitment to scientific realism, if even metaphysically conservative, could help. Of course, naïve scientific realism, being naïve, carries with it baggage some deem untenable, for example, the claim that our currently accepted theories successfully refer to unobservable entities, the stronger claim that currently accept theories are true, and the claim that science converges on truth (convergent realism). Fortunately, realism has matured. Consider, for example, *minimal epistemic realism* (MER) (Hood, 2015; Leplin, 1997), which states that there are empirical conditions that would justify theoretical hypotheses. These empirical conditions would include evidential standards, such as a theory's ability to predict novel results, as Leplin argues. MER does not hold that such empirical conditions obtain or that they ever will; some theoretical claims may never warrant credence beyond commitment to their empirical adequacy, that is, the ability to predict observable phenomena. MER does not prophesize that evidence will decisively adjudicate any given theoretical dispute; underdetermination of theory by data may prove tenacious.

MER is consistent with targeted theoretical agnosticism but, in contrast with instrumentalist approaches that delimit credence to assessments of mere empirical adequacy, MER allows for the possibility of theoretical knowledge and empirically grounded adjudication of theoretical disputes. MER is not wedded to a specific account of scientific objectivity, although it is consistent with Longino's account—the account favored by the authors. Importantly, MER, if true, would rationalize various features of the HiTOP model, which would otherwise seem mysterious as well as the methodological decisions in psychometrics. As I have argued (Hood, 2015), certain methodological decisions in psychometrics lack rationale without a commitment to realism, such as the decision to model data reflectively instead of formally and efforts to estimate individual's level on some psychological attribute such as intelligence or extroversion.

A popular account of validity states that measurement instruments are valid when they measure the attribute they were intended to measure. Though this account of validity is a century old (Kelley, 1927), it has experienced a resurgence in interest owing largely to the work of Borsboom (2005), according to whom a test of trait $T$ is valid if an only if $T$ exists and variations in $T$ cause variations in test scores. If this account of validity is accepted, then causal-theoretical principles are already baked into HiTOP. The resources of MER are sufficiently flexible to justify the assessment that a particular test is valid, provided the relevant evidentiary conditions are met. Epistemically conservative philosophies of science that limit epistemic aspirations assessments of mere empirical adequacy do not enjoy such resources, as assessments of validity necessarily appeal to theoretical, causal hypotheses.

Eschewing theoretical agnosticism also seems to accord with clinical practice where the presence of a disorder may call into question the validity of a test for some other attribute. For example, a diagnosis of autism spectrum disorder may invalidate a diagnosis of intellectual disability on the grounds that autism spectrum disorder causally preempts an accurate measure of ability as measured by, say an IQ test (Lovett & Hood, 2009). Without a causal theory, the justification for such clinical prudence would be undermined and may result in a careless proliferation of comorbid diagnoses.

Accepting MER does present challenges, although these challenges are not necessarily problems for MER per se. Rather, they arise from the current state of psychopathology and whether it is methodologically suited to justify theoretical,

causal commitments. If psychopathology is not so suited, then realist commitments are merely aspirational. One specific concern along these lines would be the use of latent variable models in the validation of constructs, because models may fit covariation data without fitting data generated by any individual in the population described by the between-subject latent variable model. This concern is the so-called problem of local homogeneity (Borsboom, 2005; Borsboom, Kievet, Cervone, & Hood, 2009), and it may have critical implications for the construction of individualized HiTOP profiles.

In closing, the HiTOP model offers a novel approach to thinking about psychopathology and promises practical, clinical applications. The model would benefit from clarification regarding what justifies placing items in specific places in the hierarchy. Additionally, HiTOP is measured in its theoretical commitments, although its epistemic austerity comes at a cost. I have argued that HiTOP may avoid this fee if a minimal commitment to realism is tolerable.

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