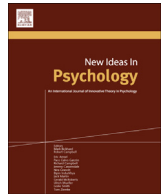




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The explanatory significance of wholes: How exclusive reliance on antecedent-consequent models of explanation undermines the study of persons

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ABSTRACT

Psychology has long labored under a mechanistic view of persons as reducible to parts (i.e., traits) that dictate human functioning. Efforts to study persons holistically—as embodied wholes embedded in the world—have resuscitated the study of personhood and its development, overhauling linear cause-effect models of psychological functioning in favor of emergence-focused, dynamic process alternatives rooted in the concept of persons as necessarily constituted within interactive context. Focused on agency and self-determination, the study of personhood also calls for an appreciation of the explanatory significance of persons as persons, as unified wholes who preserve their own organization in the face of ceaseless exchange with the world. Fully adopting this important vantage point for understanding persons, however, is only possible by expanding notions of scientific explanation beyond the temporal framework of antecedent-consequent, parts-to-whole relations in order to embrace a person's wholeness itself as a legitimate mode of explanation for understanding functioning.

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The study of personhood and its development has undergone something of a renaissance in recent years, countering decades of relative neglect in psychology and revitalizing discussion in the field over the very concept of persons (e.g., Harre, 1998; Martin & Bickhard, 2013a; Martin, Sugarman, & Hickinbottom, 2010; Overton, 2015). Whereas much late 19th and early 20th century theorizing in psychology emphasized the person as an irreducible whole, actively situated in agentive transaction with her or his world (see, for example, the classic work of John Dewey, George Herbert Mead, and William Stern, among others), psychology's orthodox focus over the last century has largely revolved around both divorcing persons from context and reducing persons to a collection of psychological parts (Danziger, 2013; Martin & Bickhard, 2013b; Tissaw, 2013). This focus, in turn, has promulgated a concept of the person as a passive byproduct of shaping forces, whether in the form of internal control structures such as personality traits, external socio-cultural structures and practices, or some additive combination thereof (Martin et al., 2010; Stetsenko, 2013). Recent efforts to both revive and extend

psychology's early personhood focus have eschewed such disembodied and disembedded approaches to the study of persons and instead have highlighted “the holistic interactivity of persons within the biophysical and sociocultural world” (Martin & Bickhard, 2013b, p. 1), with persons as both “determined and determining” (Martin et al., 2010, p. 78) and as “agentive beings who develop through profound embeddedness in socio-cultural contexts and within interactions with others” (Stetsenko, 2013, p. 186).

In effect, recent work on personhood has reintroduced the person to the psychological study of human functioning and its development. On the one hand, proponents of this work have stressed the need to conceptualize the person as inextricably intertwined with her or his contextual surround—with particular focus on the sociocultural embeddedness of the developing person—such that “interacting with environments is constitutive of the ontology of persons” (Bickhard, 2013, p. 179; see also; Martin & Gillespie, 2013; Martin et al., 2010; Tissaw, 2013). On the other hand, these same proponents have stressed the need to conceptualize the person as a unified, agentive, and emergent whole, “constituted by both biological, chemical, and neurophysiological substrates and sociocultural practices, conventions and means, *but irreducible to these constituents*” and therefore “*underdetermined by*

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such other factors and conditions” (Martin et al., 2010, p. 27, 42, *italics added*; see also; Bickhard, 2013; Stetsenko, 2013). This claim entails a conceptualization of the person as simultaneously a subject in and an object of the constructive dynamics that constitute person-context relations. The irreducible wholeness of persons emerges from the lower-order constituents and dynamics of coordinated organismic activity in physical and social context. By the same token, persons, as “agentive beings,” are self-determining in that they bring to bear an influence on the very constituents whose dynamic relations give rise to them (Martin et al., 2010; Stetsenko, 2013). Such agency, however, is necessarily embedded within and constituted by person-context relations, forever “unfold(ing) within a worldly context that supports particular actions” (Martin & Bickhard, 2013b, p. 13).

Within the study of personhood, *agency* is often conceptualized as self-consciously purposeful, reflective activity, activity that involves an individual's deliberative construction of goals and weighing of options for action well in advance of the overt activity employed to implement said goals in context (Frie, 2008; Sokol, Hammond, Kuebli, & Sweetman, 2015). As such, it serves as a viable contender for defining the nature of personhood and for distinguishing human from non-human animals. But agency can also be conceptualized more broadly, at a pre-reflective or “biophysical” level of organization (Sokol et al., 2015). Agency at a biophysical level captures the fundamental purposiveness of life, endemic to the activity of all living systems that, through their exchange with the world, metabolically regulate and sustain their own organizational integrity in the face of material and energetic turnover (Jonas, 1966; Weber & Varela, 2002). At this broadest of levels, the concept of agency reflects an epistemological need to frame a system's parts and processes in goal-directed terms, and as I shall detail in this paper, even the most basic of living systems (e.g., cells) demands such a framing to avoid “explanatory loss” (Walsh, 2013, p. 56). Furthermore, as agency entails viewing the parts and processes of a system as being *in the service* of the system as a whole, understanding a system in terms of its agency goes hand-in-hand with understanding that system in terms of whatever level of organization characterizes the system as a whole.

Explaining persons in terms of concepts like agency and organization takes the study of personhood well beyond what conventional psychological science has embraced as legitimate forms of explanation in scientific discourse, namely efficient and material causation (Hacker, 2007; Rychlak, 1988). Efficient causation frames explanation in terms of the push-from-behind mechanisms *by which* something occurs. Such mechanisms include events and conditions that bring about a consequence, as when psychologists explain a person's behavior by appeal to neurological processes, information-processing mechanisms, particular stimulus events or environmental factors, or combinations thereof (Bates, 1979; Lear, 1988). Material causation frames explanation in terms of the material substrate or substance *out of which* something arises, as when psychologists invoke parts of the brain to explain a person's behavior (Bates, 1979). Spatiotemporally concrete in their grounding, both of these modes of explanation couch scientific understanding in terms of *antecedent-consequent* relations by identifying the temporally precedent conditions—which include material grounding—that give rise to whatever phenomenon is under investigation (Overton, 1991). Appeals to system agency and organization, however, encourage different modes of explanation, modes that are both distinct from, and thoroughly misrepresented by, the antecedent-consequent relations of efficient and material causation (Hacker, 2007; Martin et al., 2010; Rychlak, 1988). Such appeals call for *formal* and *final* levels of explanation, modes that involve the influence of *wholes* relative to the *part-part relations* that comprise them.

In line with the philosophical treatment of Hacker (2007), Martin et al. (2010; see also Martin, 2014) have explicitly argued that an understanding of agency “requires our consideration of *formal* and *final* modes of explanation, modes of explanation that frequently are unnecessary in the physical sciences, but which cannot and ought not be avoided in the social and psychological sciences” (p. 165, *italics added*). Yet, in assigning particular “privilege” to “the holistic interactivity of individuals with each other” (Martin & Gillespie, 2013, p. 150), many proponents of a revived science of developing personhood treat the embeddedness of persons in context as *the* level of explanation or unit of analysis within which to understand persons. This treatment results in their underemphasizing—if not actively overlooking—the unique framework of explanation that formal and final modes critically afford for understanding persons (and living systems more generally). Specifically, formal and final modes of explanation highlight the explanatory significance of *organizational and purposeful invariance* that constitutes the person as a whole *across the particulars of specific time and context* (despite the person's perpetual embeddedness within, and ever-changing transaction with, the world). Such a view of the person *qua* person serves as a critical *structural level of explanation* against which the temporally unfolding, dynamic relations of the person-in-context must be understood. In other words, this view offers a topological context within which full understanding of the very processes that give rise to this organization must be embedded (Overton, 1991; Thompson, 2007). My aim in this paper is to emphasize the explanatory utility for the study of personhood of formal and final modes of explanation, modes that involve abstracting an individual's organization and its purposeful significance across context and time *as contexts of meaning* within which to frame an understanding of that person's activity-in-context. Such “explanation by abstraction,” however, requires a complete overhaul of the mechanistic bias and antecedent-consequent framing that have long stood as the gold standards of explanation in orthodox modern science.

1. Mechanistic bias in scientific explanation

Since the 17th century, scientific orthodoxy has encouraged a mechanistic approach to explanation, replete with an *a priori* rejection of teleology (Howard, 1990; Jonas, 1966). To view a phenomenon mechanistically—whether inorganic or organic—is to model it after the properties and functioning of a machine, as analytically decomposable into a foundational set of elemental parts and forces (Overton, 2015). Elemental parts in this formulation constitute the basic *substances* of the universe and are themselves independent and mutually exclusive of one another, each element being endowed with what amounts to an unchanging identity or essence (Overton, 2015). Forces constitute temporal exchanges of energy from an antecedent to a consequent, establishing cause-effect relations, with ‘causes’ and ‘effects’ clearly and spatiotemporally demarcated (Emmeche, Koppe, & Stjernfelt, 2000). Mechanistic explanation, in other words, entails the study of elemental “things” and their motions relative to one another (Wright & Bechtel, 2007), the combination of which results in transfers of energy and reflects a concept of causality that, in Jonas' (1966) words, is,

inseparably bound up with spatiality: in space, entities are isolable; by reference to its coordinates they can be measured and positionally identified; by means of this reference, velocity and acceleration can be determined, and in this way “effect” can be *quantitatively* correlated with “cause” (p. 132).

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