

Toward an organizational account of extended heredity

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Extended heredity is a major field of interest in scientific literature: whereas the multiplication of data regarding non-genetic inheritance encourages scientists to push for the adoption of inclusive models, non-genetic processes are said to be powerful evolutionary agents. In this presentation, I argue that pluralistic accounts of heredity, by inducing a principled extension of biological legacies and diversification of inherited factors, might however lead to the overlooked trap of hereditary holism, and turn extended heredity into a fruitless concept. Consequently, I assert that the increasing amount of data about non-genetic inheritance first and foremost requires the construction of an *integrative* theoretical framework that should be both inclusive and delimiting. I outline the first elements of a conceptual reform based on the theory of biological organization developed by Mossio and colleagues (2009, 2010). In permitting the individuation of reoccurring extended biological systems, such a perspective offers a relevant characterization of extended patterns of similarities and opens the way to a renewed definition of inherited factors – to be distinguished from other stable resources. Those reassessments have important implications for evolutionary thinking. They notably lead to the conceptualization of a new level of selection based on the holobiont model (Rosenberg /et al./, 2008) and thereby open an alternative way to conceive rapid evolutionary changes downplayed by the Modern Synthesis.