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# Multilevel Causation and the Extended Synthesis

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## Abstract

In this paper we argue for the necessity of reconsidering our classical independent causal models for biology, by integrating the dichotomies proximate/ultimate and bottom-up/top-down into multilevel approaches, more suitable to cope with complexity issues inherent to biological processes. In order to overcome these dichotomies, we also propose to introduce the notion of 'multilevel causation,' a relational concept that can uncover the multiple kinds of interconnections involved at different levels of living organization. In briefly reviewing some recent work on complexity, evo-devo, carcinogenesis, autocatalysis, animal regeneration and niche-construction to make our case, we will argue that such reconsideration is a necessary step for the advance of the "Extended synthesis".

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