
Mechanistic Explanation & Evo-Devo.

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Abstract

It has been argued that *Mechanistic Explanation sensu* MDC (2000, see also Craver, 2007), although notoriously important in many areas of biology, faces two significant limitations: on the one hand, it fails to characterize what evolutionary biologists call *evolutionary mechanisms* (Skipper and Millstein, 2005) and, on the other hand, it is too restrictive when applied to *developmental mechanisms* (Mc Manus, 2012). Insofar these criticisms are accepted, this would imply that *Evolutionary Developmental Biology* will constitute a dual challenge for this approach. It might even be that Evo-Devo cannot be integrated within the mosaic unity of neuroscience, at least not through an integration mediated by mechanisms, and so it would be a serious limitation on the scope of the entire mechanistic account. Some philosophers of biology have actually embraced this possibility and have sought to describe Evo-Devo as a *trading zone à la Galison* (Winther, forthcoming). But Evolutionary Developmental biologists seem to consider developmental mechanisms central to their research in topics such as (i) constraints, (ii) the explanation of form, and (iii) considerations regarding homology and function, thus calling into question the idea that Evo-Devo is merely a trading zone in which mechanisms, homologies and evolutionary explanations only interact tangentially. In this talk I track the source of these deficiencies to the Cumminsean notion of function that underlies the Craverian understanding of mechanisms and advocate a different characterization of what mechanisms are in Evo-Devo, a characterization in which mechanisms can be homologous and so not entirely describable in Cumminseans terms.

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