
Parental Effects II: Philosophical and Scientific perspectives

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Abstract

Parental effects can be found in most kingdoms of living organisms. As its name suggests work on these effects does not start from findings about underlying mechanisms. Instead, it starts from the relationship between parent and offspring phenotypes. Parental effects are sustained influences on offspring phenotype that are derived from the parental phenotype and are independent of the nuclear genes inherited by the offspring. Because parental effects are defined phenomenologically, as an observable relationship between phenotypes, any mechanism that produces this relationship counts as a parental effect. They are diverse, are produced through multiple mechanisms, and can be transmitted via multiple pathways. The mechanisms that can create a parental effect include: epigenetic modulation of gene expression, including parental gene products; cytoplasmic inheritance; oviposition; endosymbionts; hormonally or behaviorally induced sex determination; nutritional provisioning; maternally transmitted social status; and parental care and rearing practices. "Parental effects mean different things to different biologists—from developmental induction of novel phenotypic variation to an evolved adaptation, and from epigenetic transference of essential developmental resources to a stage of inheritance and ecological succession" (Badyaev and Uller 2009, 1169). This session will explore and combine historical, sociological, philosophical, scientific and medical perspectives of parental effects.

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