Randomization and the alignment of biological interests: why fairness doesn't matter

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Abstract

Randomizing away the information that biological individuals could get about their own reproductive success has long been recognized as an efficient way of aligning their interests and of promoting the evolution of new adaptations at the level of social collectives – the most paradigmatic example being fair segregation in meiosis, where each allele "doesn't know" whether (and in which proportion) her type will be represented in the gamete pool, and may only gain in enhancing the total number of gametes produced by their host organism. In order to shed further light on this fact, some recent studies (e.g. Okasha 2012) have moreover noticed a close affinity between such randomization process and the veil-of-ignorance thought experiment in social and political philosophy, suggesting that the fairness or "impartiality" stemming from the randomization was the key in the process of alignment in the interests of the individuals. Building on the kind of axiomatization approach that constitutes the core of social choice theory, I will show, however, that fairness of the randomization process per se, though central in the original version of the veil-of-ignorance argument, is not essential for getting such an alignment in biological settings. Rather, what matters is only whether the randomization succeeds or not in removing any control of the parts of the group members over the "desired" outcomes. Hence, even if there is a significant bias in favor of one type over another, a stable alignment of interests can nevertheless be reached under the right conditions.

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