Autonomy and Multicellular Organisms

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Abstract

From an organizational perspective, unicellular entities are considered as autonomous organisms exhibiting a particular kind of functionally differentiated and integrated organization, which plays a fundamental causal role in the generation of those constraints that ensure its maintenance and reproduction. Could this concept of 'basic' autonomy be applied to a multicellular (MC) organization? This is quite challenging, because all MC systems exhibit a degree of functional integration, and most MC systems show, at the global level, forms of functional differentiation and various degrees of inter-dependence. In this talk, I shall suggest key aspects regarding the *organizational* conditions required for the formation of organisms at the MC level. More specifically, I shall propose a general theoretical scheme that integrates developmental and evolutionary characteristics of biological organisms, and according to which a MC organism should be capable of regulating and controlling the developmental dynamics of its own collective organization. The ontogenetic development of several MC systems is investigated in detail from the point of view of their capacities and characteristics for self-construction. I shall argue that a specific type of functional integration among the cells of a MC group, i.e. a special type of 'regulatory control system' operating on a new organizational/hierarchical level and consisted in several different intercellular mechanisms that modulate the developmental process, is needed to qualify a MC system as organism. Finally, I shall argue why a MC system exhibiting this type of organization should be considered as a second-order autonomous system, and some implications for its agential capacities will be discussed.

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