Ehresmann, A. C.; **Vanbremeersch, J.-P.**

Multiplicity principle and emergence in memory evolutive systems. (English) Zbl 0879.92001

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Biological or social systems differ radically from material systems in that they have hierarchical organizations with interactions between components of various scales, they assemble and disassemble directed by overlapping internal regulations at various complexity levels and time-scales, they often give rise to the emergence of higher order processes. Most mathematical models proposed so far are based on the methods of theoretical physics, so that they are useful only when observables can be fixed once for all. The authors argue that category theory can provide a new tool for adequately dealing with such systems.

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MSC:

92B05 General biology and biomathematics
18A99 General theory of categories and functors
93A13 Hierarchical systems
93A10 General systems

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