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Sommario/riassunto Complex systems are to be seen as typically having multiple levels of

organization. For instance, in the behavioural and cognitive sciences, there has been a long lasting trend, promoted by the seminal work of David Marr, putting focus on three distinct levels of analysis: the computational level, accounting for the What and Why issues, the algorithmic and the implementational levels specifying the How problem. However, the tremendous developments in neuroscience knowledge about processes at different scales of organization together with the complexity of today cognitive theories suggest that there will hardly be only three levels of explanation. Instead, there will be many different degrees of commitments corresponding to the different granularities--from high-level (behavioural) models to low-level (neural and molecular) models of the cognitive research program. For instance, Bayesian approaches, that are usually advocated for formalizing Marr's computational level and rational behaviour, have even been adopted to model synaptic plasticity and axon guidance by molecular gradients. As a result, we can consider the behavioural scientist as dealing with models at a multiplicity of levels. The purpose

of this Research Topic in Frontiers in Theoretical and Philosophical Psychology is to promote an approach to the role of the levels and explanation and models which is of interest for cognitive scientists, neuroscientists, psychologists, behavioural scientists, and philosophers of science.