

# The Communication of Meaning in Anticipatory Systems: A Simulation Study of the Dynamics of Intentionality in Social Interactions

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Psychological and social systems provide us with a natural domain for the study of anticipations because these systems are based on and operate in terms of intentionality. Psychological systems can be expected to contain a model of themselves and their environments social systems can be strongly anticipatory and therefore co-construct their environments, for example, in techno-economic (co-)evolutions. Using Duboi's hyper-incursive and incursive formulations of the logistic equation, these two types of systems and their couplings can be simulated. In addition to their structural coupling, psychological and social systems are also coupled by providing meaning reflexively to each other's meaning-processing. Luhmann's distinctions among (1) interactions between intentions at the micro-level, (2) organization at the meso-level, and (3) self-organization of the fluxes of meaningful communication at the global level can be modeled and simulated using three hyper-incursive equations. The global level of self-organizing interactions among fluxes of communication is retained at the meso-level of organization. In a knowledge-based economy, these two levels of anticipatory structuration can be expected to propel each other at the supra-individual level.

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