Genetic, Epigenetic, and Neural Memory Systems

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Abstract

Information and plasticity (Cao, Godfrey-Smith, O'Connor) Memory can be understood as communication between temporal stages. This idea is no more than a vague metaphor in the absence of a rigorous and widely applicable theory of communication, but now we have one. Recent developments of "sender-receiver" models, especially by Skyrms, have made it possible to develop a detailed functional account of memory in communicative terms. I will outline a view of this kind and then use it to compare several natural systems that have memory-related functions. This will include a treatment of "genetic information," and comments on the general problem of understanding semantic properties from a naturalistic point of view. I will also briefly discuss Randy Gallistel and Philip King's recent challenge to current treatments of memory in neurobiology.

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