

Grand Unified Theory of Development

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Stage	General Description	Cognitive Development	Origin of Life
<i>Spontaneous</i>	System-enviro info exchange controlled mainly by innate system structures or environment	Infantile stage	Self-organizing protolife system, e.g. Oparin water droplet, or Cairns clay-based protolife
<i>Controlling</i>	System-enviro info exchange heavily guided by adaptively internally-created system structures	Piagetan "concrete operational" stage: systematic internal world-model guides world-exploration	Simple autopoietic system, e.g. Oparin water droplet w/ basic metabolism
<i>Symbolic</i>	Internal symbolic representation of information exchange process	Piagetan formal stage: explicit logical/experimental learning about how to cognize in various contexts	Genetic code: internal entities that "stand for" aspects of organism and environment, thus enabling complex epigenesis
<i>Reflexive</i>	Thoroughgoing self-modification based on this symbolic representation	Piagetan post-formal stage: purposive self-modification of basic mental processes	Genes+memes: genetic code-patterns guide their own modification via influencing culture