

# Delayed transitions in Hypercycles: ghosts in the origins of life?

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The Hypercycle is modeled with non linear evolution equations describing the dynamics of networks composed of catalytically-coupled RNA-like macromolecules. This dynamical system has been suggested to be involved in key evolutionary steps towards the increase of the informational complexity encoded by the first replicator entities in the context of earlier prebiotic evolution. The hypercycle, as a new type of matter self-organization, might have been able to overcome the informational constraint imposed by the error threshold catastrophe found in error prone replication scenarios in the first stages towards the appearance of the first living cell. Here we present an interesting dynamical property found for these kind of networks, the so-called delayed transition towards extinction, which is given by the presence of a ghost in phase space. The implications for such a dynamical phenomenon are discussed in the context of earlier prebiotic evolution and origin of life.