

Tabla de Contenidos

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Neo-Darwinian evolutionary theory explains how the appearance of purposive design in the sophisticated adaptations of living organisms can have come about without their intentionally being designed. The explanation relies crucially on the possibility of certain physical processes: mainly, gene replication and natural selection. In this paper I show that for those processes to be possible without the design of biological adaptations being encoded in the laws of physics, those laws must have certain other properties. The theory of what these properties are is not part of evolution theory proper, and has not been developed, yet without it the neo-Darwinian theory does not fully achieve its purpose of explaining the appearance of design. To this end I apply Constructor Theory's new mode of explanation to provide an exact formulation of the appearance of design, of no-design laws, and of the logic of self-reproduction and natural selection, within fundamental physics. I conclude that self-reproduction, replication and natural selection are possible under no-design laws, the only non-trivial condition being that they allow digital information to be physically instantiated. This has an exact characterisation in the constructor theory of information. I also show that under no-design laws an accurate replicator requires the existence of a "vehicle" constituting, together with the replicator, a self-reproducer.

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Last update: **2017/11/15 10:03**

