

Establishing Multi-Leveled Computability as a Living-System Evolutionary Context

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Abstract : We start by formally describing the requirements for environmental-reaction survival computation in a natural temporally-demanding medium, and develop this into a more general model of the evolutionary context as a computational machine. The effect of this development is to replace deterministic logic by a modified form which exhibits a continuous range of dimensional fractal diffuseness between the isolation of perfectly ordered localization and the extended communication associated with nonlocality as represented by pure causal chaos. We investigate the appearance of life and consciousness in the derived general model, and propose a representation of Nature within which all localizations have the character of quasi-quantal entities. We compare our conclusions with Heisenberg's uncertainty principle and nonlocal teleportation, and maintain that computability is the principal influence on evolution in the model we propose.

Keywords : computability, evolution, life, localization, modeling, nonlocality

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