



Mutual Explainability, or, a Comedy in Computerland

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Many people believe that the universe is a giant computer. This view implies that what is uncomputable has no causal power. We propose that, to the contrary, at least one uncomputable object, Kolmogorov Complexity, does play a causal role in the physical world, and that we have good scientific reasons to therefore believe it exists. We use a simple set of arguments, based on the probabilistic extension of algorithmic information theory, to show that such a causal role is not only consistent with the best evidence from cosmology, but also predicts an otherwise mysterious feature of our environment: mutual explainability. Mutual explainability is the fact that things that tend to correlate with each other also tend to explain each other.

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