

Curiosity as a Morphism of Interpretation

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Abstract

Curiosity is often viewed as information-seeking to fill knowledge gaps arising from expectation violations, typically measured statistically. However, natural systems can be represented as binary relational graphs consisting of entity types, instances, and collections, all of which must maintain relational consistency to ensure a coherent system. This consistency is assured through closure, making its interpretation central to behaviors such as curiosity. When curiosity is defined solely in statistical terms, it fails to guarantee relational consistency - a critical limitation. In contrast, interpreting the three components through closure offers a robust mechanism for verifying relational coherence. Closure is achieved when all relations are in agreement; any deviation signals inconsistency. In the absence of closure, agents seek to achieve closure by bringing in evidentiary support from memory and reinterpreting the relational structure. In this view, curiosity signals act by morphing interpretation to achieve relational closure, enabling the acquisition of coherent knowledge.