ETS Representation of Human Movement

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A recently developed representational formalism—Evolving Transformation System (ETS)—suggests a radically different view of the mind. This fundamentally new formal language suggests that mind can be viewed as a "mechanism" that produces structural object representations by recording changes in the "regular flow" of (structured) sensory events.

As a consequence, a string, for example, will be replaced by a temporal sequence of structured events, encapsulating the string's (temporal) formative history. By bringing in a true temporal perspective on object representation, such event-based representation, obviously, carry more information and in fact enough information to discern the *formative* similarity of strings. In other words, the new form of object representation is based on the temporal process of object reconstruction by an agent.

Thus, ETS assumes the following fundamental ontological postulate: as is the case with a biological organism, *any* object in nature exists along with its formative/generative history. Hence the "similarity" of objects should now be understood as the "similarity" of their formative histories. Since it is the object's formative history that reveals its similarity or dissimilarity with other objects, this formative history must be captured in the object's representation.

We present an example involving the representation of single-leg movement (while modeling the leg in as simple a manner as possible). We view leg movement as resulting from a sequence of (predefined) operations each transforming the process of movement. Most of these operations—each represented as an ETS primitive transformation—modify the flow of movement in the limb parts adjacent to the same joint (and hence each corresponding primitive modifies the "flow" of its constituent processes).