

Analogical Transforms: A Cognitive Theory of the Origin and Development of Equivalence Transformations

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In Part 1 of this article, a cognitive developmental theory of *metaphor* is presented, suggesting that what is commonly conceptualized as a linguistic phenomenon originates in a preverbal cognitive-sensory matrix in which synesthesia and physiognomic expression are but two of many transformational manifestations. Tropological or equivalence transformations are seen to evolve into higher order abstractions of literal language and mathematical functions.

In Part 2 of this article, the equivalence function is explained in terms of a cognitive-sensory schemata. It is suggested that cognitive-sensory schemata are nonconscious ordering processes of sensory, motor, affective, and structural modalities that, when subjected to transfer operations, result in so-called metaphorical productions by way of a specific operation termed *analogical transforms* that generate such phenomena as stimulus generalization, *transfer of learning*, perceptual constancy, and analogical reasoning. Empirical data illustrate the theory. It is suggested that through developmental differentiation, figurative language evolves into literal language and other abstract equivalence operations.

PART 1

From a simple figure-of-speech, the term *metaphor* has come to be applied to almost any similarity, relation, or transformation. The problem is that the extended reach of the label *metaphor* has exceeded its linguistic grasp and, therefore, explains very little outside of its linguistic domain.

The generality of its reach, however, has clearly pointed the way for the present theory; its very scope has contained the stuff of its own transformation. It is suggested here that the cardinal characteristic of the various phe-