

## **How do children establish correspondences between propositions**

A cat or a dog is on the mat and states of the world, and how do they reason using these propositions? How do people encode propositions with logical connectives AND, OR, and IF...THEN? And how do their representations change in the course of development? Several important findings have emerged. In experiments with children and adults using a variety of research tasks (e.g., problem solving, reasoning, recall, recognition, and verification of verbal statements), it was shown that children tend to construct a “minimalist” representation. In particular, they truncate all but one possibility compatible with a problem description (e.g., A. Morris & Sloutsky, 1998; B. Morris & Sloutsky, in press; Rader & Sloutsky, in press; under review; Sloutsky & Johnson-Laird, 1999; Sloutsky, 2000; Sloutsky, Morris, & Rader, 1998, Sloutsky, et al., under review; Sloutsky & Goldvarg, 1999; under review). For example, a proposition denoting multiple possibilities (e.g., A is no less than B) is likely to be represented as one denoting a single possibility (A is larger than B). For another example, consider a simple task. There are 20 blocks in a bag. Out of these 20 blocks, 5 are yellow stars, 5 are yellow triangles, 5 are blue stars, and 5 are blue triangles. An experimenter draws an object at random from the bag and describes it to the child, whereas the child has to identify the object. Even when descriptions do not afford a unique identification of the object (e.g., The object I drew is yellow), we predict that children will tend to provide answers as if the description allows them to uniquely identify the object (e.g., “it is a yellow triangle”). This tendency to construct the “minimalist” representation decreases, but not disappears, with age, as evidenced by our studies of logical reasoning with preadolescents and adults. We also demonstrated that the tendency to construct the “minimalist” representation stems from a failure to represent logical relations among atomic propositions (e.g., disjunction or implication), while representing these atomic propositions. Currently, we are trying to examine these phenomena using non-verbal tasks, such as visual search.