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Hierarchical Processing of Response Production and Categorisation

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Abstract: Early research on categorisation suggested that verbalizable and nonverbalizable category-learning are qualitatively different. Toward this end, the implementational-level model (COVIS–COmpetition between Verbal and Implicit Systems) of categorisation assumes that category-learning involves separate but parallel sub-systems. Specifically, for verbalizable tasks abstract category-labels are learned by a hypothesis-testing sub-system, while for nonvertbalizable tasks response position is learned by a procedural-learning sub-system. However, recent research has revealed that: 1) regardless of category structure, reversal learning is easier than learning novel categories; 2) qualitative difference between verbalizable and nonverbalizable tasks disappears when automaticity has developed; and 3) control of automatic categorisation is different from both proposed sub-systems. These challenges suggest a fundamental revision of the mechanisms of categorisation. Contrary to the separate, parallel-processing sub-systems theory, we argue that categorisation involves hierarchical-processing sub-systems of response-production and category-label association. This framework, when combined with Supervisory Attentional System theory, may facilitate the unification of human categorisation.