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What we still don't know about cognition

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The main difference between our cognitive science and the one that prevailed circa 1950 is the replacement of an associationistic theory of the mind by a computational theory of the mind, where a 'computation' is understood to be a formal operation that applies to a mental representation in virtue of the constituent structure of the latter. Correspondingly, it was a main objection to the Associationist project was its inability to accommodate the distinction between the constituents of a representation and its (mere) parts.

The question arises to what extent it can reasonably be supposed that mental processes involved in cognition are indeed computational in that sense. It's noted, on the one hand, that constituency is a species of part-whole relation, and that such relations are ipso facto local. This implies a substantive constraint on the character of computational operations as we now understand them; so the question arises whether cognitive processes are, in fact, local in the required sense.

Two kinds of (putative) counterexamples to the locality of cognitive processes are then considered: the significance of relations of relevance and of global properties of cognitive commitments in the fixation of belief. The question arises whether these considerations can be accommodated within the framework of our present accounts of cognition. The suggestion that they can be on the assumption that cognitive processes are 'heuristic' is briefly discussed. It is suggested that there is, so far at least, no substantive version of that suggestion is on offer. The 'sleeping dog' strategy for avoiding the Frame Problem is considered as a horrible example.

The conclusion is that, quite possibly we need a new notion of computation; one that perhaps differs significantly from Turing's as substantially as his differed from the associationism that preceded it. If that's right, then —recent advertisements to the contrary notwithstanding— we are still very far from understanding how the (cognitive) mind works; a conclusion that strikes me as independently quite plausible.