More models

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Creative Cognition: Theory, Research and Applications. By Ronald A. Finke, Thomas B. Ward and Steven M. Smith. MIT Press: 1992. Pp. 239. \$24.95, £22.50.

CREATIVITY, whether in science, literature, music, painting or everyday life remains a mystery, despite the fact that psychologists are increasingly turning their attention to the topic. *Creative Cognition* is not unrepresentative of their efforts. Too often they put old ideas together in imprecise ways, call the result a new theory (or model) and give it a high-sounding name — in the present case “Geneplore”, which competes with such previous expressions as ‘Concept Specialization Model’ and ‘Structural Mapping Theory’. The outcome is usually too commonplace to be new and too vague to be a theory.

R. A. Finke, T. B. Ward and S. M. Smith are no exceptions. They argue that creativity arises from “preattentive structures” that are assembled unconsciously. Most of their examples involve the use of visual imagery. They showed their subjects three or more shapes and asked them to imagine them put together in structures of their own choice. The subjects then had to use their ingenuity to make one of the imagined patterns represent an object of a specified kind (for example, a utensil). For instance, starting with a sphere, a rod and a half-sphere, the subject might picture the sphere connected to one end of the rod with a hollow half-sphere at the other end. The sphere could act as a handle and the half-sphere as a mould to stamp out a hamburger: the subject has invented a utensil for making hamburgers. Independent judges rated the results for their creativity. The more shapes the subject had to choose from and the wider the range of uses to which he could choose to put them, the less creative was the outcome. Does this mean anything more than that the fewer the shapes available to the subject and the smaller the number of uses he is allowed to prescribe, the more he will be forced into allocating a bizarre interpretation of the restricted structures he is permitted to imagine?

The authors call the interpretation of the preattentive structures “the exploratory process”. The process scans the structures “for emergent features”, which in the instance given might allow one to be interpreted as a utensil. At this stage, various operations can be performed on the preattentive structures, such as transforming them, blending

HORNS of a dilemma — for centuries, whalers, explorers and scientists have imagined ever more ingenious uses for the spiral tusk of the narwhal *Monodon monoceros*, the Arctic toothed whale to which the fictional unicorn owes its existence. Herman Melville, amused by all the theories — from ice augur and fish spear to defensive weapon and streamlining device — suggested in *Moby Dick* that the appendage might serve as a letter opener. Modern observations have confirmed that the tusk is used for jousting between rival males. This 1732 drawing showing the skull and horn of the narwhal appears in *The Narwhal: Unicorn of the Sea* by Fred Bruemmer. Swan Hill, £19.95.

them or forming analogies based on them. It is not entirely clear whether the exploratory process takes place at a conscious or unconscious level.

Part of the problem with Geneplore is that in many situations there is no limit to the preattentive structures that might be formed. It is hard to believe that an instant repartee or witticism depends on the examination of many preattentive structures, yet no mechanisms are provided to explain how they are constrained. Moreover, part of human creativity, for example in mathematics, is finding problems that are both soluble and important. There are several computer programs for making deductions, one of which proved most of the theorems in the first part of *Principia Mathematica*, but only at the expense of proving many more that were too trivial to be of any interest. Despite many suggestions, including Herbert Simon's means-ends analysis, there are no satisfactory programs for performing induction: some can, but only in limited domains and only if they are given detailed instructions on how to proceed.

Nothing in this book is sufficiently precise to suggest a working program. The best parts of it are those concerned with well-worn findings. For example,

when someone is trying to solve a problem, the solution often comes out of the blue after a period in which he has not been thinking about it. This phenomenon used to be called ‘the incubation effect’ because it was thought that the unconscious mind was working away at the problem. There is, however, now evidence that if a person is trying very hard to solve a problem, he cannot get away from the idea that is uppermost in his mind; when he ceases to think about it, less obvious ideas are allowed to emerge. Moreover, situations unconnected with work may by association provide the vital clue. If Archimedes had been desk-bound, he might never have had occasion to cry “Eureka”.

The authors believe that creativity can be taught, but do nothing to substantiate this thesis. They recommend potential literary prizewinners to start with a word salad and then try to make sense of it, a prescription that most modern novelists seem to follow without having had the benefit of a creative writing course. One cannot help feeling that there is more to creativity than meets the authors' eyes. □

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