

## REVIEWS

*Logics and Languages* by M. J. Cresswell, Methuen & Co.; New York, Barnes & Noble, 1973.

The idea that logic holds the key to a correct semantic theory for natural languages has a long history and varying fortunes. In recent years it has come strongly into fashion again and has been energetically supported by a growing number of writers, primarily logicians and philosophers, but also some linguists. Many earlier objections which were based on the poverty of the resources of formal languages relative to the expressive power of natural languages, have been undermined by the developments of the semantic theory of formal languages since Tarski, including the recent advances in the semantics of modal logic and the development, within logic, of the theory of categorial languages. Some changes in linguistics have worked in the same direction. Transformational generative grammar established a distinction between deep and surface structure in linguistics, and within the Transformational Generative school, the 'Generative Semanticists' find themselves increasingly interested in using the categories of logic to characterize the base of their grammars. Putting all these developments together, one has a situation in which the ancient doctrine has seemed less implausible even to some of the sceptical, and more likely of success to the believers – who anyway were sure that the day must come, since for them meaning is to be understood in terms of truth-conditions of sentences and logic is the science whose object is the deductive, that is, truth-preserving, structure of language. Cresswell is one of those who believes that the only basis for the former scepticism was the relative poverty of formal languages, and that this basis is now removed. He derives his inspiration from the work of Richard Montague, who emphatically rejected "the contention that an important theoretical difference exists between formal and natural languages".

It is a measure of the degree to which interest in Montague's work has spread, that what is essentially a booklength exposition of his ideas, modified in parts and trying to incorporate some up-to-date work in linguistics, should appear in a form that has many of the features of an introductory text-book. It is one of several recent articles or books proposing to have a grammar of English based on a categorial grammar. The idea is that a grammar of a natural language should have a generative component which is a categorial grammar – and since the semantic theory of categorial languages is already available, we have thereby a semantic theory for a natural language. The problem has always been how to relate the categorial (logical) component to the surface structure of the natural language. Montague [4] proposed to relate them simply by way of translation rules from English into intensional logic. Bartsch & Venneman [2] propose a generative categorial base (generating semantic representations) functionally related to the surface by syntactic rules (and they think this may turn out to be a notational variant of a modified form of a Montague grammar). Lewis [3] wants a categorial grammar as the syntactic base of a transformational generative grammar, and Partee [5] sketches suggestions along the same lines. Bar-Hillel [1] is someone who has been working for some time in this area.

Cresswell takes on a two-fold task in this book. He first explains the syntax and semantics of categorial languages (Parts I and II, concerned with the vertical dimension in the diagram below of the articulation of his theory) and then he sketches a way in which English might be related to a categorial language (Parts III and IV, concerned with the horizontal dimension of the diagram). In the course of doing these things, he does a fair bit of metaphysics (especially Chs. 3 and 7) and philosophy of language (especially Chs. 4, 8 and 14).

