
NATURAL LANGUAGE PARSING AND LINGUISTIC THEORIES

Uwe Reyle and Christian Rohrer (eds.)
(Universität Stuttgart)

Dordrecht: Reidel, 1988, vi + 482 pp.
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Reviewed by
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This is a collection of papers on natural language parsing and the formal description of natural languages. Most of the papers were originally presented at an interdisciplinary workshop, Word-order and Parsing in Unification Grammars, that was held in Friedenweiler, West Germany, in April 1986. However, two studies have been especially written for this volume, and an extensive introduction by Reyle and Rohrer has been added to outline the contents of the book and to provide the readers who are less familiar with unification-based formalisms with the necessary background information that the authors of the papers assumed to be known.

At the workshop mentioned above, the issue of the possible contribution of linguistic theories to natural language processing and vice versa was discussed. It was also meant as a central topic of the book under review (cf. its title), but in fact only one of the papers (by Shieber, who opens the volume) is directly concerned with the interplay between theoretical and computational linguistics, while in others the subject is touched on in a more or less parenthetical way. Generally, the authors agree that linguistic theories and natural language parsing may benefit from drawing on the experience of each other; that an implementation of a declaratively described theory may encounter difficulties (cf. the paper by Boguraev, who demonstrates it with the example of GPSG); and that linguists should not be discouraged from inventing new grammar formalisms, and ease of implementation must not be the only criterion for a linguistic theory. However, we do not go far beyond remarks of this kind, and the contents of the book may seem rather disappointing in comparison with its promising title.

This does not lessen the value of particular contributions to the volume. Because German is, no wonder, the language referred to in many of the papers, and French as well as Japanese are represented too, the book does not show the usual, though irritating, tendency of computational linguistic literature to infer very general statements concerning language on the basis of English (as if there were no other languages in the world!). In some of the papers, problems of German word order are considered, as well as non-local dependencies and coordination; in some others, questions of semantic representation are addressed.

Most of the contributors to this volume work in the framework of unification grammars (LFG and GPSG) but there is also a paper on parsing with a Government and Binding grammar (Wehrli), and two attempts to combine unification with categorial grammars (Zeevat and Whitelock). In addition, the applicability of indexed grammars, which fall in between context-free and context-sensitive grammars, is discussed (Gazdar).

Because of the wide range of issues it covers, the book can serve as supplementary reading for advanced courses in computational linguistics. Thus, apart from scholars and programmers dealing with natural language grammars and parsers, the work under review will interest students and teachers.

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COMPUTER INTERPRETATION OF NATURAL LANGUAGE DESCRIPTIONS

Christopher S. Mellish
(University of Edinburgh)

Chichester, England: Ellis Horwood Limited, 1985,
182 pp. (distributed by John Wiley and Sons).
ISBN 0-470-20219-X and 0-85312-828-6: \$26.95 (hb)

Reviewed by
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This book describes work in the areas of semantics and reference resolution for text understanding, exploring the idea of **early semantic analysis**. These ideas were implemented in a Prolog program for analyzing word problems in physics at the University of Edinburgh as part of the author's Ph.D. thesis.

Early semantic analysis is an attempt to "bring forward parts of the semantic processing before or during syntactic analysis" (p. 13). This means that semantic interpretation goes on incrementally throughout processing, rather than all at once at some pre-defined point, such as immediately after parsing. In the case of reference resolution, early semantic analysis means that the text must be seen as incrementally providing constraints on the types and identities of entities mentioned. This information is input to a constraint-satisfaction procedure that evaluates references. It seems that the system expects that eventually there will be enough constraining information to narrow the choice of candidates down to one, but it is not clear how long the system will wait for such information, or what it does if there isn't enough information available at the time when it has to make a choice. Mellish discusses