

BARTH, Else M., WICHE, R.T.P.: **Problems, Functions and Semantic Roles. A Pragmatists' Analysis of Montague's Theory of Sentence Meaning.** Berlin, New York: de Gruyter 1986. XVIII, 198 p. ISBN 3-11-009861-X (Berlin), O-89925-224-9 (New York).

According to the authors, this work is intended to serve a double purpose: it wishes to be both a textbook and a guideline for a precization, in a pragmatical sense, of Richard Montague's theory of language and grammar. The reader is assumed to possess knowledge of logic. The basis for the work is formed by Montague's book "The Proper Treatment of Quantification in Ordinary English" (1973). The authors try to place the core of Montague's theory in a communication-theoretical framework, in which endeavor they pay particular attention to the scholastic supposition theory (definition of concepts for inference purposes), to doctrines of the Prague functional school, and to statements from the cognitive sciences.

The boom starts out by interpreting Montague's semantics as an intensional semantic function in the Carnapian sense (Carnap, 1946-47). Be it noted that intension is defined here by properties and/or characteristics, such in contrast with extension, which represents a quantity of the elements falling under the concept concerned. Thus, intensional semantics relies on semantic characteristics for defining the contents of linguistic units. The authors demonstrate this by using the genus concept and 'generic' terms as examples. What becomes very clear here is Montague's interlinking of syntax and semantics as well as the utilization of multivalued logics for describing semantic subjects while making use of functions (syntactic argument and syntactic functor in one semantic function of the third order). The authors do not equate denotation with intension but rather assign both intension and extension to denotation. Denotation and extension are, therefore, not regarded as synonymous. The authors introduce so-called semantic roles into the field of communication by language, namely the role of the Producer (transmitter) and that of the Interpreter (receiver). By this it is indicated that common mental representations are available for the semantic and the grammatical basis of a language. In concept formation, therefore, the concepts of the Producer and of the Interpreter come to coincide. Montague, as well as the authors, belongs to the rather Interpreter-oriented theoreticians.

From a historical point of view, the authors arrive at the following differentiation of theory formation in this field:

- "Philosophers' English": Analytical philosophy without formalization.
- "Intensional English": A typified theory using functions, lambda conversions (class formation) and intensional logic in the Montague grammar.
- "Enriched English": This is the theory of the authors, who expand Montague's grammar by such categories as the aforementioned roles (of the Producer and the Interpreter respec-

tively), the Producer's Functional Sentence Perspective, the Latin names for kinds of denotation ("suppositiones") as well as interpretational truth-values in the Interpreter's area.

The authors demonstrate their theory in detail by outlining certain problems for which they offer a logically oriented theoretical solution including "technical" auxiliaries, meaning the linguistic categories to be applied. As examples, English illustrative sentences of most simple construction are used. Here only a brief and greatly simplified summary, in which we list the various problems, can be supplied for the reader's information.

1. *Intentional intensions*

References to abstract objects (e.g. Snowwhite) require more than one denotation, or, precisely formulated: The significance of an expression is to be interpreted extensionally or intensionally, with the Carnapian function being made use of to this end.

2. *Functional sentence perspective and syntactically ambiguous sentences in Ordinary English.*

This is a matter of misunderstandings between Producer and Interpreter (formerly called "amphiboly"), which generate semantic ambiguity through syntactically conditioned ambiguity. The Functional Sentence Perspective according to topic (known topic) and comment (new topic) creates understanding on the part of the Interpreter with the aid of substitutions. Here, therefore, the linguistic insights of the Prague school are reverted to, without any mention being made, however, of the originator of this theory, Mathesius.

3. *Theory of the Interpreter's representational apparatus: "Enriched English" and Begriffsschrift No. 2.*

Here it is a question of the predicate-logical quantors which in Montague's grammar are regarded as quantities of properties. The authors term Frege's "Begriffsschrift" (1879) Begriffsschrift (concept script) No. 1 (predicate logic as logic of the first order) and thereupon regard as Begriffsschrift No. 2 the logical representational language which they developed themselves and in which they use constants (simplicia replaced by symbols), second-order variables and lambda operators.

4. *Individual-relational meaning postulates in "Enriched English", or: link with Begriffsschrift No. 1.*

Using transitive verbs as an example, the intentionality of direct objects is commented upon; thus it is a matter of the logic of sentences with relational expressions.

5. *An improved theory of the Interpreter's representational language - "Intensional English".*

By "Intensional English" is meant: the authors' expanded theory, the so-called "Enriched English", in which the syntactic arguments are treated as Carnapian functions.

6. *A systematic description of the Interpreter's reconstructions - Ajdukiewicz grammars.*

The theoretical description of "Intensional English" is

achieved by characterizing the various syntactic categories according to their functions. In this process, "Enriched English" is transformed into "Intensional English" through translation rules by which "Intensional English" is characterized, as it were. To this end the notations for syntactic functions of juxtapositions of the Polish logician Ajdukiewicz are used.

7. *Substantive common nouns (appellatives) and the reifications of individual-functions.*

The authors proceed from the assumption that the appellatives have both "substantive" and "accidental" functions as arguments, so that in their reification (i.e. semantic concretization in the context) this differentiation is noted by the Interpreter.

8. *In the final chapter, affirmation and negation are used as prolegomena to a pragmatically oriented denotation theory for "negative sentences".*

Here, the context for a negation is presupposed, but not a logical or semantical presupposition. The authors define three negation types: exclusion negation, discrepancy negation and choice negation.

In an epilogue, the theory of "Enriched English" as opposed to Montague's grammar ("Intensional English") is defended on the grounds of the argument that

this theory is offered for an *average* interpreter, while Montague's grammar was written for an *ideal* interpreter. The essential feature of their theory is seen by the authors as lying in the introduction of the two semantic roles, the Producer and the Interpreter, so as to get away from the differentiation between denotation and reference and to assign the truth value in particular to the Interpreter.

The book reviewed is scarcely to be understood as a helpful introduction to Montague's grammar, rather it represents an independent theoretical structure of grammatical intensional logic as a representational language for syntax and semantics of ordinary English, as is also underlined by the absence of Richard Montague's main work "Universal Grammar" (in: *Theoria*, 36.1970, p. 373-398) in the bibliography. The high degree of abstraction which intensional logic permits and requires undoubtedly makes it difficult to implement the theory presented here into the practical representation of knowledge. Access to the book is facilitated by a name and subject index.

Joachim Dietze

Prof. Dr. J. Dietze, Dir. d. Universitäts- u. Landesbibliothek Sachsen-Anhalt, August-Bebel-Str. 13, D-O-4010 Halle/Saale

Ordinal Data Analysis

Invitation to a conference under this title has been issued by Prof. R. Wille from the Technische Hochschule Darmstadt, FB Mathematik, to be held March 18-21, 1992. Ordinal data occur quite frequently, but theoretical tools for handling them are not sufficiently developed. To stimulate research in this area, members of TH Darmstadt, the University of Massachusetts, Amherst, and the Centre d'Analyse et de Mathématiques Sociales, Paris, have agreed on a cooperation to which other researchers are invited as well. Courses on Formal Concept Analysis will be offered immediately before the conference (March 17-18, 1992) at TH Darmstadt. Further info from Prof. Dr. R. Wille, TH Darmstadt, FB Mathematik, Schloßgartenstr. 7, D-6100 Darmstadt.

IC's New Book Review Editor

Beginning 1992 our Book Reviews section will be edited by Prof. Daniel BENEDIKTSSON, University of Iceland, Library and Inform. Science Studies Oddi, 101, Reykjavik, Iceland.

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