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Language Theory for the Computer: Monodimensional Semantics or Multidimensional Semiotics?

Reflections on M. Th. Rolland's book „Sprachverarbeitung durch Logotechnik" (1)

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Computer linguistics continues to be in need of an integrative language-theory model. Maria Theresia Rolland proposes such a model in her book „Sprachverarbeitung durch Logotechnik" (1994). Relying upon the language theory of Leo Weisgerber, she pursues a pure „content oriented" approach, by which she understands an approach in terms of the semantics of words. Starting from the „implications" of word-contents, she attempts to construct a complete grammar of the German language. The reviewer begins his comments with an immanent critique, calling attention to a number of serious contradictions in Rolland's concept, among them, her refusal to take syntax into account despite its undeniably real presence. In the second part of his comments, the reviewer then takes up his own semiotic language theory published in 1981, showing that semantics is but one of four semiotic dimensions of language, the other dimensions being the sigmatic, the pragmatic and the syntactic. Without taking all four dimensions into account, no theory can offer an adequate integrative language model. Indeed, without all four dimensions, one cannot even develop an adequate grammar of German sentence construction. The fourfold semiotic model discloses as well the universally valid structures of language as the intersubjective expression of human self-awareness. Only on the basis of these universal structures, it is argued, is it possible to identify the specific structures of a native-language, and that on all four levels. This position has important consequences for the problems of computer translation and the comparative study and use of languages. (Author)

1. Major lines of Rolland's approach to language

For the diverse forms of machine-based language processing, in particular for the natural language dialog between man and computer, we still have no generally accepted model (despite intensive research) with which to describe the characteristics of a particular language. The lack of an appropriate model becomes painfully apparent in conjunction with the task of translating between different languages. Maria Theresia Rolland's monumental study proports to solve this problem, first for the German language, but indirectly also for other languages. Indeed, she claims that her study is not simply a partial contribution, but in fact the decisive break-through, a solution *almost exclusively in terms of pure semantics*, i.e. based entirely on immanent word-content, but claiming to cover every aspect of language.

Rolland develops her proposals on the basis of the language-content research of the Bonner linguist Leo Weisgerber, who sees himself in the tradition of Wilhelm von Humboldt when he asserts, that the reality accessible to a human being is constituted solely in and by his language, his or her world-view being constructed essentially along the lines of the „inner form" of his or her native-language. Rolland's claims for her position are set out in the following.

„As the following elaborations will show, we have succeeded, on the basis of Weisgerber's (1962a: 13 ff) *content-oriented approach* (i.e. direct reference to the semantics of the language) in identifying the rules and regularities and their underlying principles, which are constitutive for the German language. Furthermore, it is shown, that these *principles* hold good for the structure of every other language, whereby, naturally, the specific concretization will vary from one language to the other, since each language has its own specific way of grasping reality" (p. 41).

Oddly enough, despite her recognition of such „principles" of language structure, Rolland repeatedly and vigorously rejects the existence of universal language structures (linguistic universals) or of universal grammar (p.10, 20f., 31, 257, 551f.).

After two introductory chapters with the titles „I. Topic of research" and „II. Viewpoints", which do nothing more than to outline the valence theory of the verb and the theory of cases, the reader comes to the central chapter of the book „III. Logo-technique". The first part of this chapter concerns itself with word-classes (= „Wortarten") and sentence-members (= „Satzglieder"). Here Rolland asserts, that the basic semantic rules, in accordance with which words function as the reality-defining carriers of meaning, are fixed definitively in a small and thus manageable number of *word-classes*. She identifies six such classes: verbs, substantives, adjectives, adverbs, prepositions and conjunctions. Each class, she claims, has its own typical inflection - an astonishing assertion for the grammarian. Thus the „inflection" of the preposition is the case of the substantive it governs, the „inflection" of the conjunction is that of the verbal or nominative sentence-members, and for the „inflection" of the adverb the comparative form of the so-called „adjective-adverbs" or of a few innate adverbs, e.g. „gern", "lieber", „am liebsten", is called into service (p.101, 173).

Knowl. Org. 23(1996)No.3
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147