Briefly Noted

Knowledge Representation and the Semantics of Natural Language

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Springer (Cognitive technologies series, edited by Dov Gabbay and Jörg Siekmann), 2006, xviii+646 pp. and CD-ROM;
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This book is an extended description of a knowledge representation formalism, multilayered extended semantic networks (or MultiNets), used by the author and his colleagues for the semantic representation of natural language. The level of detail means that this is not an easy or introductory read; the book will be most useful for other researchers engaged in reconciling knowledge representation and natural language, especially those looking to compare representational devices for dealing with a range of semantic phenomena.

Since the book principally sets out to document what MultiNets are, a brief description is in order. An ordinary semantic network consists of a set of concepts and a set of binary relations between concepts (e.g., *kind_of*, *part_of*), often represented as a directed graph. MultiNets build on ordinary semantic networks via extension, layering, and encapsulation.

- **Extension:** MultiNets allow *n*-ary relations and functions, as well as parameterized entities for representing dependencies between conceptual items. A predefined, and well-documented, vocabulary of around 100 relations and 20 functions (e.g., *agent*, *cause*) is assumed.
- **Layering:** MultiNets embed conceptual items into a multidimensional space. One of the more significant dimensions is the intensional/(pre-)extensional one. The intensional dimension represents relations between kinds of objects (either specific sub-kinds or generic), whereas the pre-extensional dimension covers such things as the cardinalities of extensions of concepts.
- **Encapsulation:** Relations that are definitional of a particular conceptual node are encapsulated and thus distinguished from those that are just accidentally or situationally true of the node. Encapsulation provides a way of distinguishing between different forms of restrictive and non-restrictive modification.

Using the machinery of MultiNets, the author illustrates a variety of semantic phenomena, including comparative constructions, spatial and temporal relations, intensional and extensional forms of negation, modalities, cardinality and plurality, and relations between situations.

Philosophically, the book espouses a "meaning as use" approach to the semantics of MultiNets, rather than a model-theoretic one. While this is an attractive position, the chapter on question answering and inference is too brief to provide much insight about the intended use of MultiNets. This sometimes makes it hard to determine what particular MultiNets are supposed to mean, or how the meaning of one relates to and differs from that of another. The discussion of intensional and extensional negation is a case in point, where pairings of different German sentences (with English translations) and MultiNet diagrams do not always elucidate the distinctions being drawn. The presentation would have benefited from explanation of how different parts of the representations target different aspects of the situation being described.

The technical core of the book is an admirably comprehensive description of each of the 120 or so relations and functions used by MultiNets, drawn from what is clearly very detailed system documentation. But much of the text surrounding this core also reads like hyperlinked system documentation, with a welter of forward and backward references to other sections throughout. This makes it hard for the uninitiated to work their way into understanding what MultiNets are about, and stronger editorial direction in the first part of the book could have made it shorter, more self-contained, and easier to follow.—*Dick Crouch, Palo Alto Research Center*

Putt's Law and the Successful Technocrat: How to Win in the Information Age

Archibald Putt (pseudonym)

Hoboken, NJ: IEEE Press and John Wiley & Sons, 2006, x+171 pp; hardbound, ISBN 0-471-71422-4, $24.95

"**Evaluating ideas:** . . . Studies reveal that the prestige of the author or coauthors is the first measure of the value of a [scholarly] publication, quite independent of any new ideas the publication may contain. After writing a paper, it is worthwhile to find a prestigious person who is willing to become a coauthor. . . . In addition, . . . there is yet another way to measure a paper's value without trying to read and understand it. That method is to see how many subsequent papers refer back to it. . . . The use of these evaluation methods has led to the Law Governing the Value of Technical Publications: *The value of a technical article, when first published, is proportional to the sum of the prestige of its authors, but its ultimate value is proportional to the number of references to it.* It should be noted that this law refers to the value of a paper to its authors, as opposed to any value it may also have to the technical community."—*pp. 141–142.*