Semantics

An International Handbook of Natural Language Meaning

Volume 1

Edited by

Claudia Maienborn
Klaus von Heusinger
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Handbooks of Linguistics and Communication Science
Handbücher zur Sprach- und Kommunikationswissenschaft

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Manuels de linguistique et des sciences de communication

Mitbegründet von Gerold Ungeheuer (†)
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Preface

An essential property of language is that it is meaningful. The meaningfulness of language may be manifest in many ways: Language may be used to express emotion, take action, indicate one's place in the social world, and so forth. But at the core of our understanding of linguistic meaning is the fact that language may be used to describe the world, and, unlike simpler semiotic systems, it can describe the world in a limitless variety of ways. Although the nature of meaning has been an issue for as long as people have discussed linguistic problems, semantics as a subdiscipline of linguistics only emerged in the 19th century as diachronic semantics. The rise of synchronic linguistics affected semantics only with some delay, as early structuralist semantic descriptions were restricted to lexical semantics (see Ullmann 1957). The modern semantic enterprise – that is, the systematic scientific study of meaning – was born within philosophy and logic as scholars began to understand better the capacity of language to describe the world. Thus, a semanticist might aim to explain how it is that the sentence *snow is white* connects to the world's being in a certain way (Tarski 1944's famous example). Over time, the development of model-theoretic, possible worlds semantics in logic and philosophy gave rise to a credible model of semantic content, and this approach was quickly imported into linguistics. By the 1970's, many linguistic semanticists had come to see their aim as understanding how speakers of a language know that a given sentence is true in certain imaginable circumstances (i.e., possible worlds, including the world as it actually is), but not in others. That is, the task of semantics came to be the discovery of a set of principles which determine how the morphemes and words which make up a sentence, and the sentence's grammatical structure, determine its truth conditions modeled in terms of possible worlds. Another important trend in the early days of linguistic semantics was the development of a number of theoretical frameworks based closely on generative syntax, including for example Katz & Postal's (1964) and Generative Semantics (McCawley 1968, Lakoff 1971). These theories relied on extending the technology of transformational syntax to the representation of meaning. Syntactically-based approaches were ultimately found insufficient for both theory internal reasons (they could not account for all of the phenomena of semantics in a plausible way) and for conceptual reasons (they failed to adequately address the descriptive capacity of language). It was in this context that the model-theoretic, possible worlds approach of logic and philosophy came to dominate linguistic semantics as well.

Despite being so greatly influenced by philosophy, by the 1970's semantics had become fully established as a sub-field within linguistics, separate from philosophy and complete with its own theoretical apparatus to guide progress and debates. These days, most students of semantics learn far more about syntax, phonology, and morphology than they do about philosophy of language or logic. This growing differentiation from philosophy was characterized by a shift to a cognitively oriented view of language closely connected to syntax and a concern for understanding all of language, not just simple model examples like *snow is white*. Although other non-syntactic approaches were around at that time (e.g. Hintikka's Game Theoretic Semantics, see Hintikka 1973, Hintikka & Sandu 1997), by far the most influential models from the early days of linguistic semantics were the

approaches of Richard Montague (1970a, 1970b, 1973) and related work by such scholars as David Lewis (1970) and Maxwell Cresswell (1973). As mentioned above, this line of research explicitly addressed the descriptive quality of language by borrowing from formal logic the idea that the semantic content of a sentence can be modeled with possible worlds. It combined a model-theoretic, possible worlds semantics with generative syntactic models (though not necessarily orthodox ones) which looked like they might be able to be extended to cover significant portions of natural language.

Through the work of a number of scholars in the 1970's, Montague's syntactic and semantic system developed into a widely used and influential semantic framework, Montague Grammar (cf. Partee 1976; Dowty, Wall & Peters 1981), but from quite early on it was clear there would be no theoretical orthodoxy in semantics. Some scholars were developing new semantic theories (e.g. Kamp's 1981 Discourse Representation Theory, Heim's 1982 File Change Semantics, Barwise & Perry's 1983 Situation Semantics, and Davidsonian theories of the kind systematized by, for example, Parsons 1990 and Larson & Segal 1995). Others focused on analyzing particular linguistic phenomena, and these scholars were not necessarily concerned with harmonizing the details of their analyses with one another (e.g. Kratzer 1977, 1978, Barwise & Cooper 1981, Jacobs 1983, Link 1983 to take a few examples chosen almost at random). Other important work in semantics did not follow a model-theoretic paradigm (e.g. Jackendoff 1972, 1990, Bierwisch 1982 and Bierwisch & Lang 1989) and was to varying degrees meant as a cognitively oriented alternative, rather than a potential complement, to the more mainstream Montague Grammar and its descendents.

This picture of modern semantics is well represented in the first *Handbook of Semantics* (HSK 6, von Stechow & Wunderlich 1991). Perhaps the most important reason why frameworks like Montague Grammar slowly lost their orthodox status was the realization that language is simply too complex to be approached in terms of a single, shared theory, at least given our (then as well as current) level of understanding. As more and more phenomena were investigated, the number of interesting analytical tools began to grow. For example, one can think of the ideas which have been put forward to explain quantifier scope phenomena since Montague, including quantifying in, quantifier raising, storage, unselective binding, and choice functions. Moreover, a better understanding of the diversity among human languages has made it even more clear that a wide variety of ideas and approaches will be around for quite some time. This development has produced benefits: Semanticists can study many phenomena and languages simultaneously while postponing the issue of how what they learn fits together until such time as that issue can be addressed in an intelligent way; and it has inflicted costs: Sometimes the theoretical assumptions (compositional mechanisms, model theory if any, syntactic framework, etc.) in contemporary work are inexplicit or inconsistent with other semanticists' assumptions.

As semanticists have realized that a better understanding of meaning in natural language would not come from incremental progress on a single agreed-upon theoretical framework and set of theoretical tools, but rather necessitated the coexistence of and competition among a multiplicity of models, a number of important issues have come into focus. The nature of the interfaces between semantics and neighboring linguistic disciplines (especially syntax and pragmatics) is open for debate, as are the choices of particular syntactic or pragmatic theories to be interfaced with. The role of semantics as a component discipline within cognitive science has become more important to many

semanticists investigating the nature of semantic representations and the kinds of inferences drawn in the course of producing and understanding natural language. To the extent that semanticists have begun to utilize evidence drawn from new sources such as crosslinguistic data, psycholinguistic or neurolinguistic experiments, and very large corpora, important methodological issues have come to the forefront. The current level of concern for methodological issues is a sign of the field's maturity as a scientific discipline.

In light of the contemporary situation within semantics as outlined above, the present handbook aims at the following goals:

1. To discuss the foundations and methodology of semantics.
2. To introduce important theoretical frameworks and theoretical issues.
3. To cover a wide variety of specific topics and phenomena of natural language meaning.
4. To explore the relationship between semantics and other fields, both within linguistics and outside.

The articles contained in the three volumes of this handbook not only address these tasks, but also represent the research results of a whole generation of semanticists since the state of the art recorded by its predecessor *Semantics – An International Handbook of Contemporary Research* in the same series (HSK 6) from 1991. We hope that the present handbook will be useful to researchers in a number of ways. It provides a reference resource of established empirical facts and theoretical results. It introduces contemporary theories and theoretical debates. It informs readers about research trends and controversies. It includes a summary of the history of, and historical background to, semantics. And finally, we hope that it will stimulate research by pointing out gaps, inconsistencies, and flaws in how semantics is currently practiced and conceptualized.

It was a long journey from the initial planning to the final shape of the handbook and we are greatly indebted to many people who accompanied us along that way and helped us eventually reach the final destination. First of all, we would like to thank our authors for their continuous enthusiasm in this joint venture. Next, we wish to thank the publisher Mouton de Gruyter for their continuous support and professional assistance from the first planning until the last proof reading; special thanks are due to Barbara Karlson for continuously and patiently taking care of the various stages the handbook project had to run through. This handbook wouldn't exist without the invaluable help of our editorial assistants, Noor van Leusen and Elena Karagjosova. They know how this handbook was built from the inside out, and assisted with (or took charge of) various facets from the planning stages to final production. Thanks also go to Janina Radó and Susanne Trissler for their assistance in proof reading and, in particular, to our student assistants who accompanied this handbook project with no less endurance and dedication than the editors themselves: Michael Fister and Dankmar Enke (University of Tübingen); Annika Deichsel, Julia Jürgens and Tatjana Tietze (University of Stuttgart); and Justin Kelly, Lissa Krawczyk, Yanyan Cui, and Julia Wise (Georgetown). Noor, Elena, Susanne and the students dealt with the demands of the style guidelines as they would be applied to over one hundred manuscripts (some of which were quite close to the mark). We were very fortunate to be able to work together with such an excellent team of collaborators and authors whose enthusiasm for the field of semantics never dwindled over the course of the project. It is this commitment to the field that we hope to bequeath to our readers.

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X. Verb phrase semantics

XI. Semantics of adjectives and adverb(ial)s

XII. Semantics of intensional contexts

XIII. Scope, negation, and conjunction

XIV. Sentence types

XV. Information structure

Volume 3

XVI. The interface of semantics with phonology and morphology

XVII. The syntax-semantics interface

XVIII. The semantics-pragmatics interface

XIX. Typology and crosslinguistic semantics

XX. Diachronic semantics

XXI. Processing and learning meaning

Contents

Volume 1

I. Foundations of semantics

II. History of semantics

III. Methods in semantic research

IV. Lexical semantics

V. Ambiguity and vagueness

VI. Cognitively oriented approaches to semantics

VII. Theories of sentence semantics

VIII. Theories of discourse semantics

Volume 2

IX. Noun phrase semantics

I. Foundations of semantics

1. Meaning in linguistics

Abstract

The article provides an introduction to the study of meaning in modern semantics. Major tenets, tools, and goals of semantic theorizing are illustrated by discussing typical approaches to three central characteristics of natural language meaning: truth conditions, compositionality, and context and discourse.

1. Introduction

Meaning is a key concept of cognition, communication and culture, and there is a diversity of ways to understand it, reflecting the many uses to which the concept can be put. In the following we take the perspective on meaning developed within linguistics, in particular modern semantics, and we aim to explain the ways in which semanticists approach, describe, test and analyze meaning. The fact that semantics is a component of linguistic theory is what distinguishes it from approaches to meaning in other fields like philosophy, psychology, semiotics or cultural studies. As part of linguistic theory, semantics is characterized by at least the following features:

1. Empirical coverage: It strives to account for meaning in all of the world's languages.
2. Linguistic interfaces: It operates as a subtheory of the broader linguistic system, interacting with other subtheories such as syntax, pragmatics, phonology and morphology.
3. Formal expliciteness: It is laid out in an explicit and precise way, allowing the community of semanticists to jointly test it, improve it, and apply it to new theoretical problems and practical goals.
4. Scientific paradigm: It is judged on the same criteria as other scientific theories, viz. coherence, conceptual simplicity, its ability to unify our understanding of diverse phenomena (within or across languages), to raise new questions and open up new horizons for research.

In the following we exemplify these four features on three central issues in modern semantic theory that define our understanding of meaning: truth conditions, compositionality, and context and discourse.

Maienborn, von Heusinger and Portner (eds.) 2011, Semantics (HSK 33.1), de Gruyter, 1–10

2. Truth

If one is to develop an explicit and precise scientific theory of meaning, the first thing one needs to do is to identify some of the data which the theory will respond to, and there is one type of data which virtually all work in semantics takes as fundamental: truth conditions. At an intuitive level, truth conditions are merely the most obvious way of understanding the meaning of a declarative sentence. If I say *It is raining outside*, I have described the world in a certain way. I may have described it correctly, in which case what I said is true, or I may have described it incorrectly, in which case it is false. Any competent speaker knows to a high degree of precision what the weather must be like for my sentence to count as true (a correct description) or false (an incorrect description). In other words, such a speaker knows the truth conditions of my sentence. This knowledge of truth conditions is extremely robust – far and wide, English speakers can make agreeing judgments about what would make my sentence true or false – and as a result, we can see the truth conditions themselves as a reliable fact about language which can serve as part of the basis for semantic theory.

While truth conditions constitute some of the most basic data for semantics, different approaches to semantics reckon with them in different ways. Some theories treat truth conditions not merely as the data which semantics is to deal with, but more than this as the very model of sentential meaning. This perspective can be summarized with the slogan "meaning is truth conditions", and within this tradition, we find statements like the following:

(1) [[*It is raining outside*]]^{t,s} = TRUE iff it is raining outside of the building where the speaker *s* is located at time *t*, and = FALSE otherwise.

The double brackets [[X]] around an expression X names the semantic value of X in the terms of the theory in question. Thus, (1) indicates a theory which takes the semantic value of a sentence to be its truth value, TRUE or FALSE. The meaning of the sentence, according to the truth conditional theory, is then captured by the entire statement (1).

Although (1) represents a truth conditional theory according to which semantic value and meaning (i.e., the truth conditions) are distinct (the semantic value is a crucial component in giving the meaning), other truth conditional theories use techniques which allow meaning to be reified, and thus identified with semantic value, in a certain sense. The most well-known and important such approach is based on possible worlds:

(2) a. [[*It is raining outside*]]^{w,t,s} = TRUE iff it is raining outside of the building where the speaker *s* is located at time *t* in world *w*, and = FALSE otherwise.
b. [[*It is raining outside*]]^{t,s} = the set of worlds {w : it is raining outside of the building where the speaker *s* is located at time *t* in world *w*}

A possible world is a complete way the world could be. (Other theories use constructs similar to possible worlds, such as situations.) The statement in (2a) says virtually the same thing as (1), making explicit only that the meaning of *It is raining outside* depends not merely on the actual weather outside, but whatever the weather may turn out to be. Crucially, by allowing the possible world to be treated as an arbitrary point of evaluation, as in (2a), we are able to identify the truth conditions with the set of all such points, as