An Advanced Introduction to Semantics

This book is an advanced introduction to semantics that presents this crucial component of human language through the lens of the ‘Meaning-Text’ theory – an approach that treats linguistic knowledge as a huge inventory of correspondences between thought and speech. Formally, semantics is viewed as an organized set of rules that connect a representation of meaning (semantic representation) to a representation of the sentence (deep-syntactic representation). The approach is particularly interesting for computer assisted language learning, natural language processing and computational lexicography, as our linguistic rules easily lend themselves to formalization and computer applications. The book combines abstract theoretical constructions with numerous linguistic descriptions, as well as multiple practice exercises that provide a solid hands-on approach to learning how to describe natural language semantics.

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An Advanced Introduction to Semantics
A Meaning-Text Approach

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Preface

First things first: What kind of book is this? Well, this is a textbook, an introduction to linguistic semantics; but it is an advanced introduction to the field, and it requires a certain degree of application on the part of the reader. (However, as we shall see, it is structured in a way that makes it easier to navigate than it might seem at first.) Apart from this, the book has the following two main "distinctive features":

- It adopts a view of semantics as a component, or module, of the linguistic system, whose functioning is simulated by a corresponding linguistic model. Language is considered to be a set of rules that establish correspondences between meanings and their possible expressions, and the lion’s share of this correspondence is taken care of by the semantic module. This is the approach put forward by the Meaning-Text linguistic theory and its language models, called, predictably, Meaning-Text models.
- It is organized around a system of rigorous notions, specified by about eighty mathematical-like definitions. (Some of the notions that will be introduced are semanteme, semantic actant, communicative dominance, lexical function.) This system is deductive, consistent and formal; therefore, our exposition is also deductive and (strives to be) logically consistent.

Four salient characteristics of the Meaning-Text approach, reflected in the way the present textbook is organized, need to be mentioned.

1. Its emphasis on formal modeling of languages and their fragments implies, among other things, the elaboration and use of formal languages for the representation/description of semantic facts. (This makes the proposed linguistic descriptions suitable for applications in natural language processing and language teaching.) Accordingly, several kinds of formalism will be used in the book: semantic networks for representing meanings of sentences and lexical units; dependency trees for representing the syntactic structure of sentences; lexical functions for representing lexical relations; and rules of various types for representing semantic operations (such as lexicalization of an initial semantic structure or synonymous paraphrasing).

2. It prioritizes synthesis over analysis. That is to say, it models speech production, as opposed to speech understanding; the latter has been the focus of most mainstream approaches to semantics. It takes the viewpoint of the Speaker (rather than the Addressee); in this way, synonymy, in
particular paraphrase, is placed at the center of semantic research. All linguis-
tic phenomena discussed are consistently presented from the Speaker’s
perspective.

3. It is based on relational representations – it considers relations, in the first
place, dependency relations, among linguistic units as the main organizing
factor in language, and, therefore, in semantics. (Most current linguistic
approaches are focused on classes and constituency.) This is why we will
have a lot to say about semantic and deep-syntactic dependencies in this
book.

4. It is lexicon-centered – it attaches paramount importance to the lexicon and
its modeling, and has developed for this purpose a special kind of diction-
ary, the Explanatory Combinatorial Dictionary, which is a pivotal element
of the semantic module. Therefore, the description of lexical units – their
meaning, cooccurrence and groupings within the lexicon – takes center
stage in this textbook.

Let it be emphasized that we deal exclusively with synchronic semantics;
historical (= diachronic) semantics is not even touched on. Within synchro-
ic semantics we cover both propositional semantics – the representation and
description of the meanings of sentences and the semantic relations between
them – and lexical semantics – i.e., the representation and description of lex-
ical meanings and semantic-lexical relations, the emphasis being squarely on
the latter. It goes beyond propositional semantics in that it considers infor-
mation structure (topic–comment distribution, focus assignment, etc.), usually
treated as belonging to pragmatics, as an integral part of semantic description.
However, the following important domains of synchronic semantics are left
outside our scope:

• Morphological semantics is not considered; the representation of semantic
inflectional meanings, for instance, verbal voice, mood, tense and aspect
in English, etc. is discussed sporadically, to the extent that these meanings
appear in the linguistic representations under discussion.

• Semantic phenomena are considered up to the level of sentences, to the ex-
clusion of text/discourse semantics.

• No systematic review of other approaches to semantics is offered; where
appropriate, pointers to the work done in frameworks close to ours – such as
Natural Semantic Metalanguage and Frame Semantics – are provided.

A few words about the organization of the textbook are in order. The main
text consists of twelve chapters, divided into three parts: Part I – Fundamentals
(Chapters 1–2), Part II – Meaning in Language and Its Description (Chapters
3–9), and Part III – Meaning-Text Model of Semantics (Chapters 10–12).

Chapter 1 characterizes semantics as part of language viz. a branch of lin-
guistics and broadly presents our frame of reference, Meaning-Text linguistic
theory and its language models. Chapter 2 introduces some basic linguistic notions necessary for the discussion of semantics to follow. Chapter 3 is dedicated to the main persona dramatis of this book – linguistic meaning. Chapter 4 considers lexical meanings, expressed as lexical items of various types, and Chapter 5, the main tool for describing them – the lexicographic definition. Chapters 6 and 7 are reserved, respectively, for semantic-lexical relations (such as synonymy, antonymy, intensification, nominalization, etc.) and their formal modeling by means of lexical functions. Chapter 8 describes the overall organization of the lexical stock and a particular type of dictionary used within Meaning-Text theory to model it, the Explanatory Combinatorial Dictionary. Chapter 9 is about sentential meaning and semantic relations between sentences (paraphrase, implication, and so on). Chapter 10 is dedicated to the linguistic representation that serves as the input for the application of semantic rules: the semantic representation. Chapter 11 deals with the deep-syntactic representation, the output of semantic rules. Finally, Chapter 12 presents semantic rules, responsible for the mapping between semantic and deep-syntactic representations of linguistic expressions.

Each chapter contains a “Further Reading” section, with pointers to the essential titles related to the topic of the chapter.

The textbook also features:

- An appendix presenting some mathematical and logical notions (sets, operations, relations, formal languages, etc.) widely used in linguistics.
- Exercises with a detailed key (available at www.cambridge.org/meaning-text).
- Bibliographic references
- Indexes:
  - Index cum glossary of notions and terms, containing succinct characterizations of the most salient elements of the notional and terminological system used in the book.
  - Index of definitions. The book introduces scores of new terms, or old terms used in novel ways, that are defined when they first occur. They are presented here in order of appearance.
  - Index of languages from which linguistic examples are drawn.
  - Index of lexical units and semantemes (= lexical meanings) exemplified or otherwise treated in the book.

Before we place the reader in a tête-à-tête with the book, a word of caution is in order. As we said at the outset, this is not an easy introduction; it cannot be read linearly. But language itself is not linear! In language, everything is interconnected, so you will need to navigate back and forth. To give just one example, before studying lexical functions, in Chapter 7, it would be useful to read about the linguistic representation in which they are used, that is, the deep-syntactic structure, which is dealt with in Chapter 11. We have provided lots of cross-references to help you with the task.
Acknowledgments

We extend our heartfelt thanks to Lidija Iordanskaja for her attentive reading of the manuscript and a host of modifications it underwent as a result, which greatly improved the accuracy and clarity of our formulations.

Our most profound gratitude goes to Ian Mackenzie for hunting down a number of mistakes and correcting several less-than-felicitous formulations, as well as for his merciless editorial interventions, which went a long way towards making the language and style of the book “more English.”

We are very grateful to Stephanie Doyle-Lerat for her editorial suggestions, which have made our text lighter and more elegant.

And we say a cordial “Thank you” to two anonymous readers of the Cambridge University Press.
Symbols, Abbreviations and Writing Conventions

Symbols
<table>
<thead>
<tr>
<th>Symbol</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>C</td>
<td>condition part of a linguistic rule</td>
</tr>
<tr>
<td>L</td>
<td>a particular language</td>
</tr>
<tr>
<td>L</td>
<td>a particular lexical unit</td>
</tr>
<tr>
<td>«L»</td>
<td>a particular fictitious lexeme (in the deep-syntactic structure)</td>
</tr>
<tr>
<td>L('X')</td>
<td>a particular lexical unit L expressing the meaning ‘X’</td>
</tr>
<tr>
<td>‘L₁ … Lₙ’</td>
<td>a particular idiom L₁ … Lₙ</td>
</tr>
<tr>
<td>L₁→morph→L₂</td>
<td>L₂ depends on L₁ morphologically</td>
</tr>
<tr>
<td>L₁→sem→L₂</td>
<td>L₂ depends on L₁ semantically</td>
</tr>
<tr>
<td>L₁→synt→L₂</td>
<td>L₂ depends on L₁ syntactically</td>
</tr>
<tr>
<td>L₁ ↔ L₂</td>
<td>L₁ and L₂ are co-referential (= L₁ and L₂ have the same referent)</td>
</tr>
<tr>
<td>NB</td>
<td>important but tangential (= logically not necessary) information</td>
</tr>
<tr>
<td>Q</td>
<td>underlying question (used to determine the Rheme and the Theme of a sentence)</td>
</tr>
<tr>
<td>r</td>
<td>a particular syntactic dependency relation</td>
</tr>
<tr>
<td>R</td>
<td>RHEME (communicative value)</td>
</tr>
<tr>
<td>RDSynt</td>
<td>Deep-Syntactic Rheme (communicative value)</td>
</tr>
<tr>
<td>RSem</td>
<td>Semantic Rheme (communicative value)</td>
</tr>
<tr>
<td>s</td>
<td>a particular linguistic sign</td>
</tr>
<tr>
<td>‘s’</td>
<td>the meaning of s; the signified of a linguistic sign s</td>
</tr>
<tr>
<td>‘s̃’</td>
<td>the communicatively dominant component of a meaning</td>
</tr>
<tr>
<td>/s/</td>
<td>the segmental signifier of a linguistic sign s</td>
</tr>
<tr>
<td>‘σ’</td>
<td>a particular semanteme</td>
</tr>
<tr>
<td>‘σ̃’</td>
<td>a particular configuration of semantemes</td>
</tr>
<tr>
<td>Σₛ</td>
<td>the syntactics of a linguistic sign s</td>
</tr>
<tr>
<td>T</td>
<td>THEME (communicative value)</td>
</tr>
<tr>
<td>TDSynt</td>
<td>Deep-Syntactic Theme (communicative value)</td>
</tr>
<tr>
<td>TSem</td>
<td>Semantic Theme (communicative value)</td>
</tr>
<tr>
<td>X</td>
<td>a linguistic expression</td>
</tr>
<tr>
<td>*X</td>
<td>an ungrammatical linguistic expression</td>
</tr>
<tr>
<td>‘X’</td>
<td>an incorrect or dubious linguistic expression</td>
</tr>
<tr>
<td>‘X’</td>
<td>a pragmatically deficient or semantically anomalous linguistic expression</td>
</tr>
<tr>
<td>X〈Y〉</td>
<td>Y, a variant of X</td>
</tr>
</tbody>
</table>
List of Symbols, Abbreviations & Writing Conventions

<table>
<thead>
<tr>
<th>Symbol</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>X</td>
<td>Y</td>
</tr>
<tr>
<td>X ⊃ Y</td>
<td>set X includes Y as a subset</td>
</tr>
<tr>
<td>X ∩ Y ≠ Λ</td>
<td>sets X and Y have a non-empty intersection</td>
</tr>
<tr>
<td>X ∩ Y = Λ</td>
<td>sets X and Y have an empty intersection (X and Y are disjoint)</td>
</tr>
<tr>
<td>X ⇔ Y</td>
<td>correspondence between linguistic entities X and Y of two adjacent representation levels (‘X corresponds to Y and vice versa’)</td>
</tr>
<tr>
<td>X ≡ Y</td>
<td>X and Y are exactly equivalent</td>
</tr>
<tr>
<td>X ≅ Y</td>
<td>X and Y are quasi-equivalent</td>
</tr>
<tr>
<td>X → Y</td>
<td>X implies/entails Y (Y is an implication/entailment of X)</td>
</tr>
<tr>
<td>{x_i}</td>
<td>a set of elements x_i</td>
</tr>
<tr>
<td>⟨x, y, ..., z⟩</td>
<td>an ordered set of elements x, y, ..., z</td>
</tr>
<tr>
<td>[‘X’]</td>
<td>a presupposed semantic component ‘X’</td>
</tr>
<tr>
<td>/x/</td>
<td>a fused element x of the value of a lexical function</td>
</tr>
<tr>
<td>-x</td>
<td>a radical or a prefix</td>
</tr>
<tr>
<td>-x</td>
<td>a suffix</td>
</tr>
<tr>
<td>1, 2, 3</td>
<td>pronominal/verbal person 1, 2, 3</td>
</tr>
<tr>
<td>I, II, ..., VI</td>
<td>DSynt-actants I, II, ..., VI</td>
</tr>
<tr>
<td>Ø</td>
<td>zero sign (= sign whose signifier is empty)</td>
</tr>
<tr>
<td>Λ</td>
<td>the empty set</td>
</tr>
<tr>
<td>⊕</td>
<td>operation of linguistic union</td>
</tr>
<tr>
<td>⊢</td>
<td>directly relevant important information</td>
</tr>
<tr>
<td>⊢</td>
<td>explanations concerning conventions and notations</td>
</tr>
</tbody>
</table>

Abbreviations

- A | actant |
- A (= ADJ) | adjective (part of speech) |
- ACC | accusative (grammeme of nominal/adjectival case) |
- ACT | active (grammeme of verbal voice) |
- ADV | adverb (part of speech) |
- APPEND | the appenditive deep-syntactic relation |
- ART | article |
- ATTR | the attributive deep-syntactic relation |
- CDN | communicatively dominant node (of a semantic configuration) |
- CLAUS | clausative (part of speech) |
- colloq. | colloquial (stylistic label) |
- COMPAR | comparative (grammeme of adjectival/adverbal degree of comparison) |
- compar | comparative (conjunction; value of a syntactic feature) |
- COORD | the coordinative deep-syntactic relation |
- COND | conditional (grammeme of verbal mood) |
- CONJ | conjunction (part of speech) |
- D- | deep (sublevel of linguistic representation) |
<table>
<thead>
<tr>
<th>Symbol</th>
<th>Meaning</th>
</tr>
</thead>
<tbody>
<tr>
<td><code>dat</code></td>
<td>dative (grammeme of nominal/adjectival case)</td>
</tr>
<tr>
<td><code>DEF</code></td>
<td>definite (grammeme of nominal determination)</td>
</tr>
<tr>
<td><code>DET</code></td>
<td>determiner (syntactic class of lexemes)</td>
</tr>
<tr>
<td><code>DirO</code></td>
<td>Direct Object</td>
</tr>
<tr>
<td><code>dir-obj</code></td>
<td>the direct-objectival surface-syntactic relation</td>
</tr>
<tr>
<td><code>DSyntA</code></td>
<td>deep-syntactic actant</td>
</tr>
<tr>
<td><code>DSyntS</code></td>
<td>deep-syntactic structure</td>
</tr>
<tr>
<td><code>DSynt-AnaphS</code></td>
<td>deep-syntactic anaphoric structure</td>
</tr>
<tr>
<td><code>DSynt-CommS</code></td>
<td>deep-syntactic communicative structure</td>
</tr>
<tr>
<td><code>DSynt-ProsS</code></td>
<td>deep-syntactic prosodic structure</td>
</tr>
<tr>
<td><code>DSyntR</code></td>
<td>deep-syntactic representation</td>
</tr>
<tr>
<td><code>ECD</code></td>
<td>Explanatory Combinatorial Dictionary</td>
</tr>
<tr>
<td><code>fem</code></td>
<td>feminine (a grammeme of adjectival/verbal gender)</td>
</tr>
<tr>
<td><code>fem</code></td>
<td>feminine (gender; value of a syntactic feature of a noun)</td>
</tr>
<tr>
<td><code>fut</code></td>
<td>future (grammeme of verbal tense)</td>
</tr>
<tr>
<td><code>GP</code></td>
<td>Government Pattern</td>
</tr>
<tr>
<td><code>impers</code></td>
<td>impersonal (value of a syntactic feature)</td>
</tr>
<tr>
<td><code>iff</code></td>
<td>if and only if</td>
</tr>
<tr>
<td><code>IND</code></td>
<td>indicative (grammeme of verbal mood)</td>
</tr>
<tr>
<td><code>IndirO</code></td>
<td>Indirect Object</td>
</tr>
<tr>
<td><code>indir-obj</code></td>
<td>the indirect-objectival surface-syntactic relation</td>
</tr>
<tr>
<td><code>INDEF</code></td>
<td>indefinite (grammeme of nominal determination)</td>
</tr>
<tr>
<td><code>inf</code></td>
<td>infinitive (grammeme of verbal finiteness)</td>
</tr>
<tr>
<td><code>intrans</code></td>
<td>intransitive (value of a syntactic feature of a verb)</td>
</tr>
<tr>
<td><code>LDOCE</code></td>
<td>Longman Dictionary of Contemporary English</td>
</tr>
<tr>
<td><code>LF</code></td>
<td>lexical function</td>
</tr>
<tr>
<td><code>LU</code></td>
<td>lexical unit</td>
</tr>
<tr>
<td><code>lit.</code></td>
<td>literal</td>
</tr>
<tr>
<td><code>liter.</code></td>
<td>literary (stylistic label)</td>
</tr>
<tr>
<td><code>MASC</code></td>
<td>masculine (grammeme of adjectival/verbal gender)</td>
</tr>
<tr>
<td><code>masc</code></td>
<td>masculine (gender; value of a syntactic feature of a noun)</td>
</tr>
<tr>
<td><code>MTM</code></td>
<td>Meaning-Text model</td>
</tr>
<tr>
<td><code>MTT</code></td>
<td>Meaning-Text theory</td>
</tr>
<tr>
<td><code>MWLD</code></td>
<td>Merriam-Webster’s Learner’s Dictionary</td>
</tr>
<tr>
<td><code>N</code></td>
<td>noun (part of speech)</td>
</tr>
<tr>
<td><code>NEU</code></td>
<td>neuter (grammeme of adjectival/verbal gender)</td>
</tr>
<tr>
<td><code>neu</code></td>
<td>neuter (gender; value of a syntactic feature of a noun)</td>
</tr>
<tr>
<td><code>NOM</code></td>
<td>nominative (grammeme of nominal/adjectival case)</td>
</tr>
<tr>
<td><code>NUM</code></td>
<td>cardinal numeral (part of speech)</td>
</tr>
<tr>
<td><code>ObiO</code></td>
<td>Oblique (= Prepositional) Object</td>
</tr>
<tr>
<td><code>obl-obj</code></td>
<td>the oblique-objectival surface-syntactic relation</td>
</tr>
<tr>
<td><code>OED</code></td>
<td>Oxford English Dictionary</td>
</tr>
<tr>
<td><code>PART</code></td>
<td>participle (grammeme of verbal finiteness)</td>
</tr>
<tr>
<td><code>PASS</code></td>
<td>passive (grammeme of verbal voice)</td>
</tr>
</tbody>
</table>
List of Symbols, Abbreviations & Writing Conventions

**Past**
- past (grammeme of verbal tense)

**Perf**
- perfective (grammeme of verbal aspect)

**Pers**
- personal (value of a syntactic feature)

**Pl**
- plural (grammeme of nominal/adjectival/verbal number)

**Prep**
- preposition (part of speech)

**Pres**
- present (grammeme of verbal tense)

**Pron**
- pronominal (value of a syntactic feature)

**-R**
- representation (linguistic)

**RefS**
- referential structure

**RhetS**
- rhetorical structure

**S-**
- surface (sublevel of linguistic representation)

**-S**
- structure

**Sem-**
- semantic

**SemA**
- semantic actant

**Sem-CommS**
- semantic-communicative structure

**SemS**
- semantic structure

**SemR**
- semantic representation

**Sg**
- singular (grammeme of nominal/adjectival/verbal number)

**SSyntA**
- surface-syntactic actant

**SSyntR**
- surface-syntactic representation

**SSyntS**
- surface-syntactic structure

**SyntRel**
- syntactic relation

**SyntR**
- syntactic representation

**Subj**
- the **subjectival** surface-syntactic relation

**Synt-**
- syntactic

**Trans**
- transitive (value of a syntactic feature of a verb)

**V**
- verb (part of speech)

**Vulg.**
- vulgar (stylistic label)

**Fonts**
- Linguistic examples are in *italics*
- Textual glosses are in roman and between ‘semantic quotes.’
- Interlinear glosses are in roman
- Lexical units are in **upper case**: APPLE, LEAVE, FOR, etc.
- Grammemes (= inflectional values) are in **upper case**: PAST, PL(ural), etc.
- Derivatemes are in *Helvetica Italic* upper case: ‘ONE WHO [does L]’ *(read+er from read1, teach+er from teach1).*
- The names of lexical functions are in **Courier New**: S0, Magn, Oper1, etc.
- Semantic labels are in **Courier New**: fact, event, manufactured object, etc.
List of Symbols, Abbreviations & Writing Conventions

- At their first mention (and sporadically where it is deemed useful), technical terms are in Helvetica: antonymy, dependency, semanteme, etc.

**Lexicographic Numbers**

When citing English lexical units, we use, when necessary, lexicographic, or sense-distinguishing, numbers: BABY\(_{(N)}\,1\), CHANGE\(_{(V)}\,1\), FILE\(_{(N)}\,3\), LIE\(_{(V)}\,1\), 'MAKE SENSE'\,1, etc. For the most part, these numbers are taken from LDOCE Online (www.ldoceonline.com), but with an important modification. Unlike LDOCE, we do not use the numbers in superscript to indicate the part of speech of lexical units; thus, instead of writing LIE\,2 for the verb *(to lie through one's teeth)* and LIE\,3 for the noun *(to tell lies)*, as LDOCE does, we write LIE\(_{(V)}\,2\,1\) and LIE\(_{(N)}\,3\). We use numbers in superscript exclusively to distinguish homophonous vocables (= phonologically identical but semantically unrelated lexical items), such as LIE\(_{(V)}\,1\) *(I need to lie\,1 down. | I know where the problem lies\,2)* and LIE\(_{(V)}\,2\) *(Don't lie\,2 to me. | Statistics can often lie\,2)*. At times we also use our own lexicographic numbers (our lexicographic-numbering system will be introduced in Ch. 8, 2.3.2).
Phonemic/Phonetic Symbols

More or less obvious symbols are not listed.

C´ palatalized consonant C
V̄ long vowel V
Ñ nasal vowel Ñ
æ high-front open unrounded vowel [Eng. cat]
c voiceless alveolar affricate [It. grazie ‘thanks’, Ger. zwei ‘two’]
č voiceless palatoalveolar affricate [Eng. church]
δ voiced interdental fricative [Eng. the]
e mid-front closed unrounded vowel [Fr. féée ‘fairy’]
e high-front open unrounded vowel [Fr. fait ‘fact’]
j voiced palatal fricative [Eng. year]
l voiced palatal lateral approximant [Sp. lluvia ‘rain’, It. veglio ‘old’]
η voiced velar nasal [Eng. young]
j voiced palatal nasal [Sp. niña ‘girl’, Fr. peigne ‘(a) comb’]
o mid-back closed rounded vowel [Fr. peau ‘skin’]
ɔ mid-back open rounded vowel [Eng. law]
ø mid-front open rounded vowel [Fr. queue ‘tail’]
œ mid-front open rounded vowel [Fr. cœur ‘heart’]
q voiceless uvular stop
ɾ voiced alveolar flap [Am. Eng. rider]
š voiceless dental sibilant fricative [Eng. shy]
u high-back closed rounded vowel
ü high-front rounded vowel [Fr. lune ‘moon’]
θ voiceless interdental fricative [Eng. think]
w voiced rounded labiovelar fricative [Eng. we]
x voiceless velar fricative [Ger. Bach ‘stream’]
ž voiced dental sibilant fricative [Eng. treasure]
ʒ voiced palatoalveolar affricate [Eng. jam]
ʔ glottal stop
ʕ voiceless pharyngeal stop [Arabic ‘ain]