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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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 linguistic 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 dictionary, 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 synchronic 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 lexical meanings and semantic-lexical relations, the emphasis being squarely on the latter. It goes beyond propositional semantics in that it considers information 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 exclusion 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 linguistics 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.

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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

| *C*	condition part of a linguistic rule
L	a particular language
L	a particular lexical unit
«L»	a particular fictitious lexeme (in the deep-syntactic structure)
L('X')	a particular lexical unit L expressing the meaning 'X'
⌜L_1 … L_n⌝	a particular idiom L_1 … L_n
L_1–**morph**→L_2	L_2 depends on L_1 morphologically
L_1–**sem**→L_2	L_2 depends on L_1 semantically
L_1–**synt**→L_2	L_2 depends on L_1 syntactically
L_1 ◄⋯► L_2	L_1 and L_2 are co-referential ⟨= L_1 and L_2 have the same referent⟩
NB	important but tangential (= logically not necessary) information
Q	underlying question (used to determine the Rheme and the Theme of a sentence)
r	a particular syntactic dependency relation
R	Rheme (communicative value)
$\mathbf{R}_{\mathbf{DSynt}}$	Deep-Syntactic Rheme (communicative value)
$\mathbf{R}_{\mathbf{Sem}}$	Semantic Rheme (communicative value)
s	a particular linguistic sign
's'	the meaning of **s**; the signified of a linguistic sign **s**
's̲'	the communicatively dominant component of a meaning
/s/	the segmental signifier of a linguistic sign **s**
'σ'	a particular semanteme
'σ̃'	a particular configuration of semantemes
$\sum_{\mathbf{s}}$	the syntactics of a linguistic sign **s**
T	Theme (communicative value)
$\mathbf{T}_{\mathbf{DSynt}}$	Deep-Syntactic Theme (communicative value)
$\mathbf{T}_{\mathbf{Sem}}$	Semantic Theme (communicative value)
X	a linguistic expression
**X*	an ungrammatical linguistic expression
?*X*	an incorrect or dubious linguistic expression
#*X*	a pragmatically deficient or semantically anomalous linguistic expression
X ⟨Y⟩	Y, a variant of X

X | Y	Y, conditions of use of X
X ⊃ Y	set X includes Y as a subset
X ∩ Y ≠ **Λ**	sets X and Y have a non-empty intersection
X ∩ Y = **Λ**	sets X and Y have an empty intersection ⟨= X and Y are disjoint⟩
X ⇔ Y	correspondence between linguistic entities X and Y of two adjacent representation levels ⟨= 'X corresponds to Y and vice versa'⟩
X ≡ Y	X and Y are exactly equivalent
X ≅ Y	X and Y are quasi-equivalent
X → Y	X implies/entails Y ⟨= Y is an implication/entailment of X⟩
$\{x_i\}$	a set of elements x_i
⟨*x*, *y*, …, *z*⟩	an ordered set of elements *x*, *y*, …, *z*
⟦'X'⟧	a presupposed semantic component 'X'
//*x*	a fused element *x* of the value of a lexical function
x-	a radical or a prefix
-x	a suffix
1, 2, 3	pronominal/verbal person 1, 2, 3
I, **II**, …, **VI**	DSynt-actants **I**, **II**, …, **VI**
Ø	zero sign (= sign whose signifier is empty)
Λ	the empty set
⊕	operation of linguistic union
⚠	directly relevant important information
☛	explanations concerning conventions and notations

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/adverbial 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)

DAT	dative (grammeme of nominal/adjectival case)
DEF	definite (grammeme of nominal determination)
DET	determiner (syntactic class of lexemes)
DirO	Direct Object
dir-obj	the **direct-objectival** surface-syntactic relation
DSyntA	deep-syntactic actant
DSyntS	deep-syntactic structure
DSynt-AnaphS	deep-syntactic anaphoric structure
DSynt-CommS	deep-syntactic communicative structure
DSynt-ProsS	deep-syntactic prosodic structure
DSyntR	deep-syntactic representation
ECD	*Explanatory Combinatorial Dictionary*
FEM	feminine (a grammeme of adjectival/verbal gender)
fem	feminine (gender; value of a syntactic feature of a noun)
FUT	future (grammeme of verbal tense)
GP	Government Pattern
iff	if and only if
impers	impersonal (value of a syntactic feature)
IND	indicative (grammeme of verbal mood)
IndirO	Indirect Object
indir-obj	the **indirect-objectival** surface-syntactic relation
INDEF	indefinite (grammeme of nominal determination)
INF	infinitive (grammeme of verbal finiteness)
intrans	intransitive (value of a syntactic feature of a verb)
LDOCE	*Longman Dictionary of Contemporary English*
LF	lexical function
LU	lexical unit
lit.	literal
liter.	literary (stylistic label)
MASC	masculine (grammeme of adjectival/verbal gender)
masc	masculine (gender; value of a syntactic feature of a noun)
MTM	Meaning-Text model
MTT	Meaning-Text theory
MWLD	*Merriam-Webster's Learner's Dictionary*
N	noun (part of speech)
NEU	neuter (grammeme of adjectival/verbal gender)
neu	neuter (gender; value of a syntactic feature of a noun)
NOM	nominative (grammeme of nominal/adjectival case)
NUM	cardinal numeral (part of speech)
OblO	Oblique (= Prepositional) Object
obl-obj	the **oblique-objectival** surface-syntactic relation
OED	*Oxford English Dictionary*
PART	participle (grammeme of verbal finiteness)
PASS	passive (grammeme of verbal voice)

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 ITALICS UPPER CASE*: '*ONE WHO* [does L]' (*read*+***er*** from $read_L$, *teach*+***er*** from $teach_L$).
- The names of lexical functions are in `Courier New`: S_0, `Magn`, $Oper_1$, etc.
- Semantic labels are in `Courier New`: `fact`, `event`, `manufactured object`, etc.

- 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$_{(V)}^{2}$**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$_{(N)}$. 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}**1** down.* | *I know where the problem lies^{1}**2**.*) and LIE$_{(V)}^{2}$ (*Don't lie^{2}**1** to me.* | *Statistics can often lie^{2}**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
Ṽ	nasal vowel V
æ	high-front open unrounded vowel [Eng. *c**a**t*]
c	voiceless alveolar affricate [It. *grazie* ‘thanks’, Ger. *zwei* ‘two’]
č	voiceless palatoalveolar affricate [Eng. ***ch**ur**ch***]
ð	voiced interdental fricative [Eng. ***th**e*]
e	mid-front closed unrounded vowel [Fr. *f**é**e* ‘fairy’]
ɛ	mid-front open unrounded vowel [Fr. *f**ai**t* ‘fact’]
j	voiced palatal fricative [Eng. ***y**ear*]
l	voiced palatal lateral approximant [Sp. ***ll**uvia* ‘rain’, It. *ve**gli**o* ‘old’]
ŋ	voiced velar nasal [Eng. *you**ng***]
ɲ	voiced palatal nasal [Sp. *ni**ñ**a* ‘girl’, Fr. *pei**gn**e* ‘[*a*] comb’]
o	mid-back closed rounded vowel [Fr. ***eau*** ‘skin’]
ɔ	mid-back open rounded vowel [Eng. ***l**aw*]
ø	mid-front closed rounded vowel [Fr. *q**ueue*** ‘tail’]
œ	mid-front open rounded vowel [Fr. ***œu**r* ‘heart’]
q	voiceless uvular stop
ɾ	voiced alveolar flap [Am. Eng. *ri**d**er*]
š	voiceless dental sibilant fricative [Eng. ***sh**y*]
u	high-back closed rounded vowel
ü	high-front rounded vowel [Fr. *l**u**ne* ‘moon’]
θ	voiceless interdental fricative [Eng. ***th**ink*]
w	voiced rounded labiovelar fricative [Eng. ***w**e*]
x	voiceless velar fricative [Ger. *Ba**ch*** ‘stream’]
ž	voiced dental sibilant fricative [Eng. *trea**s**ure*]
ǯ	voiced palatoalveolar affricate [Eng. ***j**am*]
ʔ	glottal stop
ʕ	voiceless pharyngeal stop [Arabic ***ʿ**ain*]