SPAU133

Semantics

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What is semantics?

Semantics is a subfield of linguistics that studies linguistic meaning and how expressions convey meanings. It deals with the nature of meaning itself—what exactly are linguistic meanings, and what is their relationship to the language user on the one hand and the external world on the other? Semanticists study not only word meanings, but also how word meanings combine to produce the meanings of larger phrasal expressions. Finally, an important part of the study of natural language meaning involves meaning relations between expressions.

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The two types of semantics:

Semantics is the subfield of linguistics that studies meaning in language. We can further subdivide the field into **lexical** and **compositional** semantics. Lexical semantics deals with the meanings of words and other lexical expressions, including the meaning relationships among them. In addition to lexical expressions, phrasal expressions carry meaning. Compositional semantics is concerned with phrasal meanings and how phrasal meanings are assembled.

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Two Aspects of Linguistic Meaning

- **Sense :** the mental representation of an expression's meaning, or maybe a concept related to it.
- **Reference**: the relationship of the expression to the world. In other words, reference means knowing what things in the real does the expression refer to. The specific entities in the real world that an expression refers to are called ***referents***. The collection of all the referents of an expression are its reference.

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- We need to know the sense of an expression in order to know its reference. In other words, if we know the reference of an expression, we guarantee that we know its sense. HOWEVER, THE OPPOSITE IS NOT TRUE.
- Knowing the sense of a word does not guarantee that the reference of it is known as well. For example, the word “diamond”.

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Meaning Relationships: Hyponymy

a. Hyponymy. One kind of word meaning relation is **hyponymy.** We say that a word X is a **hyponym** of a word Y if the set that is the reference of X is always included in the set that is the reference of Y. When some set X is included in a set Y, we also say that X is a subset of Y.

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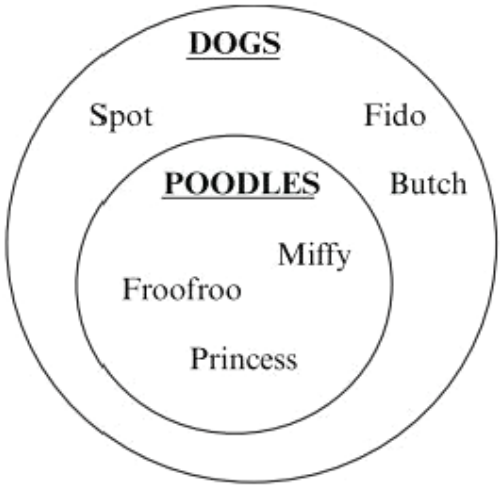
Hyponyms, Hypernyms, and sister terms

(4) Visual representation of the hyponymous relation between *poodle* and *dog*



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Synonymy

b. Synonymy. Another kind of semantic relation is **synonymy.** Two words are synonymous if they have exactly the same reference. It may be difficult to come up with pairs of truly synonymous words, but *couch/sofa, quick/rapid,* and *groundhog/woodchuck* come close. Anything that is a groundhog is also a woodchuck, and vice versa. The set that is the reference of *groundhog* is exactly the same set as the one that is the reference of *woodchuck*. Of course, the senses of the words in these pairs may differ—it is possible for someone to know what woodchucks are without knowing what groundhogs are, so their senses are not the same thing. Similarly, *quick* and *rapid* may have different senses, but the set of quick things in the world is probably the same as the set of rapid things.

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Antonymy

c. Antonymy. A third kind of semantic relation is **antonymy.** The basic notion of antonymy is of being "opposite" in some sense. In order for two words to be antonyms of one another, they must have meanings that are related, yet these meanings must contrast with each other in some significant way.

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In terms of antonymy, pairs can be:

- Complementary pairs
- Gradable pairs
- Reverses
- Converses

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Complementary Antonyms

(6) Complementary antonyms
   a. married/unmarried
   b. existent/nonexistent
   c. alive/dead
   d. win/lose

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Gradable Antonyms

(7) Gradable antonyms
   a. wet/dry
   b. easy/hard
   c. old/young
   d. love/hate

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Reverses (Key word: movement)

(9) Reverses
   a. put together/take apart
   b. expand/contract
   c. ascent/descent

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Converses (Key word: points of view or perspective)

(10) Converses
- a. lend/borrow
- b. send/receive
- c. employer/employee
- d. over/under

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Compositional Semantics

- Related to understanding the meaning of sentences rather than words or single expressions.

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- Propositions: the claim made by a sentence.
- Truth Values: This is when a proposition is either true or false.
- Truth Conditions: the conditions what would have to hold in the world in order for a proposition to be true.

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Relationships Between Propositions

- Entailment
- Incompatibility

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Entailment

(8) a. Ian owns a Ford Focus.
b. Ian owns a car.

(9) a. Ian has a full-time job.
b. Ian is employed.

(10) a. Ian has visited Spain.
b. Ian has visited Europe.

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Mutual Entailment

- When two propositions entail each other, we refer to their relationship as one of mutual entailment.

(11) a. Ian has a female sibling.
b. Ian has a sister.

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Incompatible Proposition

- This means that it would be impossible for both propositions to be true. In other words, the truth conditions for one proposition are incompatible with the truth conditions for the other.

(12) a. No dogs bark.
b. All dogs bark.

(13) a. George Washington is alive.
b. George Washington is dead.

(14) a. Ian has a full-time job.
b. Ian is unemployed.

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The principle of compositionality

This is precisely what the **principle of compositionality** states: the meaning of a sentence (or any other multi-word expression) is a function of the meanings of the words it contains and the way in which these words are syntactically combined. There has to be some way for speakers to figure out the meanings of sentences based on lexical meanings and syntactic structures, since all languages contain an infinite number of sentences. It is clearly impossible to memorize all distinct sentence meanings. However, the meanings of all words and other lexical expressions are stored in the mental lexicon, and a part of speakers' mental grammar is syntax. Because the meanings of sentences can be computed based

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on word meanings and syntactic structures, speakers can produce and understand an infinite number of sentences. In this way, the principle of compositionality is related to the design feature of productivity. Crucially, speakers can comprehend the meanings of completely novel sentences, as illustrated by the sentences in (2). While you've most likely never encountered these sentences before, you should have no trouble figuring out what they mean.

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Can the principle of compositionality fail?

- Mary kicked the bucket.

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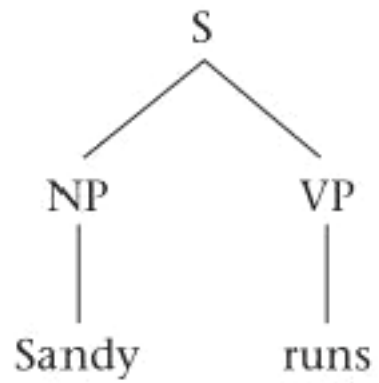
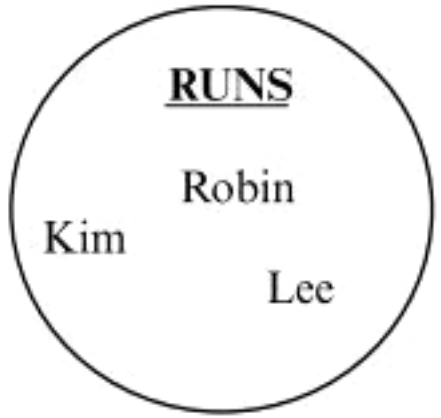
Combining meanings of NP and VP

(3)



(4)



Sandy

Michael

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Although discussing the details of computing the meanings of multi-word NPs such as *the 44th president of the United States* or multi-word VPs such as *likes Bob a lot* is beyond the scope of this book, we note that many expressions whose syntactic category is NP refer to specific individuals, while expressions whose syntactic category is VP refer to sets of individuals. Thus, *the 44th president of the United States* refers to the individual Barack Obama, and *likes Bob a lot* refers to the set of individuals who like Bob a lot. In many cases, then, the proposition expressed by a sentence is true just in case the referent of the subject NP is a member of the set that is the reference of the VP. For example:

(6) a. Sandy's dog barks.
truth conditions: true just in case the individual that *Sandy's dog* refers to is in the set of all barkers

b. The 44th president of the United States eats apples.
truth conditions: true just in case Barack Obama is in the set of all apple-eaters

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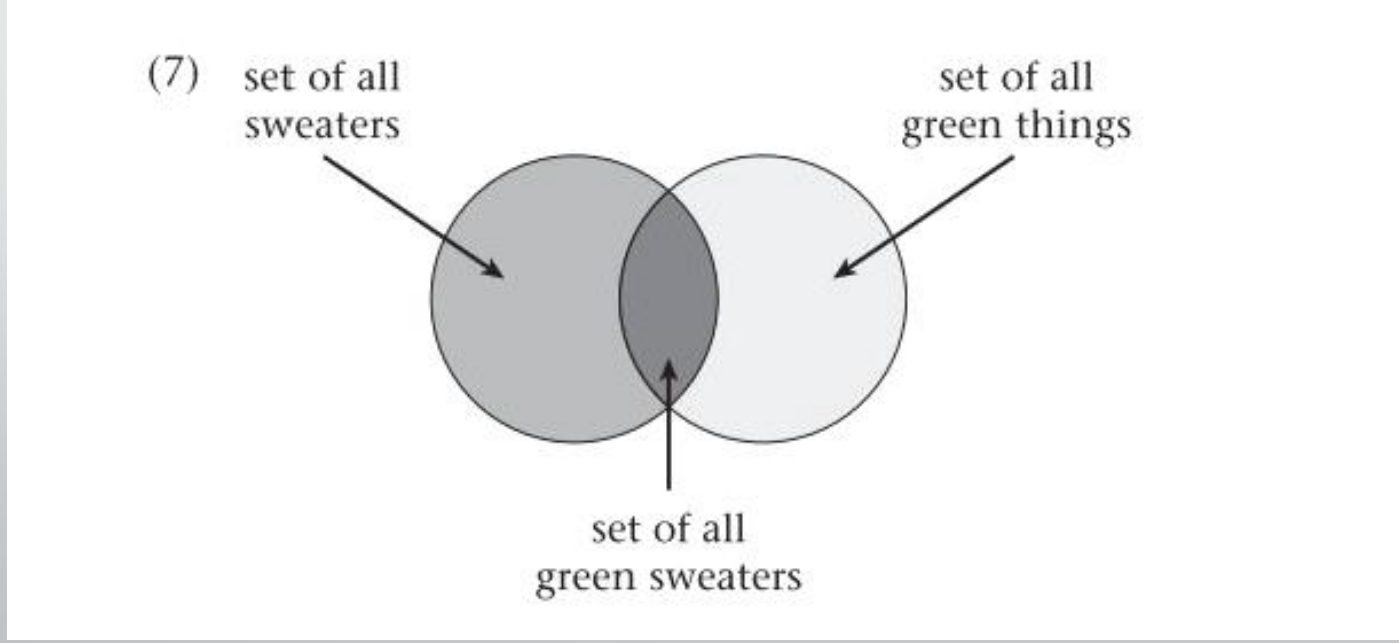
Adjectival Combination: 1- Pure Intersection

Intersective adjectives
Both sets can be identified independently



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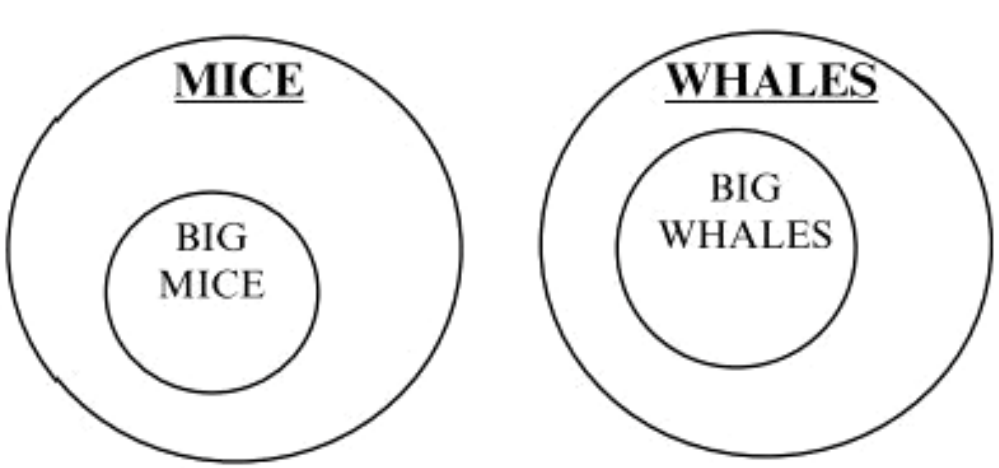
2. Relative intersection

- The reference of the adjective has to be determined relative to the reference of the noun

(8)



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