

Lexemes & their Senses



Homonymy

Polysemy

Synonymy

Hyponymy

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Topics

- ▣ Lexical Semantics
- ▣ Word Senses
 - Homonymy
 - Polysemy
- ▣ Relation between Senses
 - Synonymy & Antonymy
 - Hyponymy

Lexical Semantics

- ▣ Lexical semantics is the study of meaning-related connections among lexemes, and their internal meaning-related structure of individual lexemes
- ▣ Lexeme – an individual entry in the lexicon
- ▣ Lexicon – a finite list of lexemes
- ▣ Orthographic form – refer to appropriate form part of a lexeme
- ▣ Sense – lexeme's meaning component
- ▣ Example: Dictionary – about meanings of lexemes

Lexical Semantics

- ▣ Semantics of individual lexemes can be captured by analyzing and labeling their relations to other lexemes
- ▣ Lexicon is not a finite listing, but rather as a creative generator of infinite meanings
 - *right* and *left* are similar kind of lexemes
 - *red* is color can be applied to *blood* and *rubies*
- ▣ Lexemes are analyzable symbols, rather have an internal structure, that governs how they can be combined with other words to form sentences

Word Senses – Homonymy

- Systematic substitution of one lexeme for another can reveal the presence of specific relationship between the substituted lexemes
- Homonymy – relation that holds between *words that have the same form* with unrelated meanings
 - *bank* – two senses: 1.financial institute 2.sloping mound

A *bank* can hold the investments in a custodial account...
But as agriculture burgeons on the east *bank*, the river will shrink...



Word Senses – Homonymy

- A word sense is a discrete representation of one aspect of the meaning of a word
- Words with **same pronunciation** but different spellings are not homonyms, but rather **homophones** – *would / wood, sun / son*



an ad in the newspaper

$$\begin{array}{r} 1 \\ + 1 \\ \hline 2 \end{array}$$

to add numbers



the little ant looked for food



our aunt came to visit



the mate ate spaghetti

8

eight



soccer ball



the baby began to bawl



members of a marching band



smoking has been banned



the man was billed a lot of money



to build a house

Word Senses – Homonymy

- Lemmas with the **same orthographic form** but different pronunciations – **homographs**

bass – fish ('bas) , music ('bas)

The expert angler was fly-casting for *bass* rather than...
The sound of the *bass* drum

- Text-to-speech and IR systems are vulnerable to homographs
- Speech recognition, spelling correction systems are vulnerable to homophones

Word Senses – Homonymy

HOMONYMS	HOMOPHONES	HOMOGRAPHS
<i>multiple meaning words</i>	<i>words that sound alike</i>	<i>same spelling, different pronunciation, different meanings</i>
the spruce tree... to spruce up...	addition for math edition of a book	desert = abandon desert = area of land
suit yourself... wore a suit ...	I want to go I like it too One plus one is two	bass = fish bass = instrument
weigh on the scale ... scale the wall...	capitol building state capital	close = nearby close = to shut
the price is fair ... go to the fair ...	pick a flower bake with flour	bow = to bend down bow = ribbon

Word Senses – Polysemy

- ▣ There is some semantic connection between the senses of a word
- ▣ Polysemy – multiple related meanings within a single lexeme
bank – repository of entities
eg: *blood bank*, *egg bank*, *eye bank*
- ▣ This sense of *bank* is related to, derived from, the financial institution sense, **without asserting that it is a distinct lexeme**

Word Senses – Polysemy

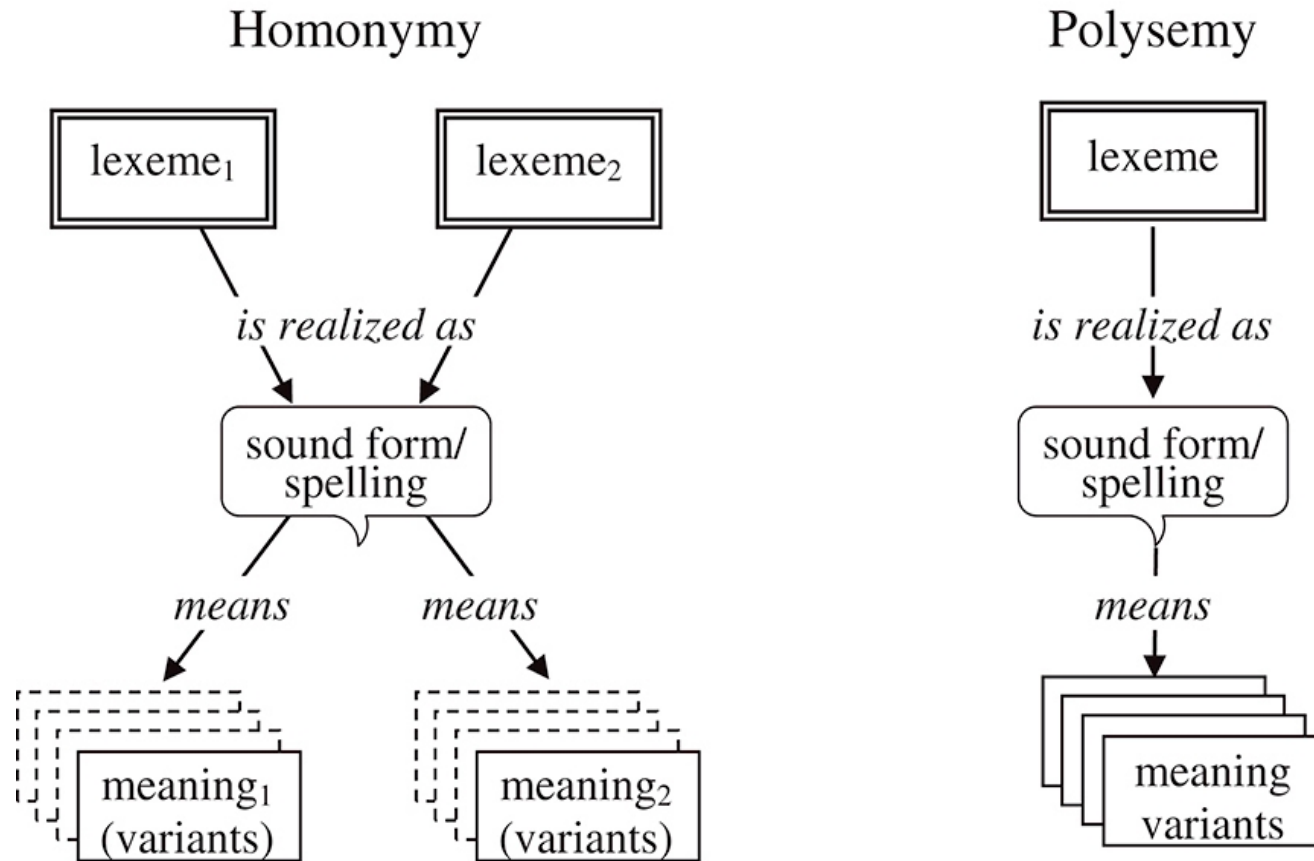


Figure 3.1 Homonymy and polysemy

Word Senses – Polysemy

- ▣ To determine if two distinct senses are present – combine two separate uses of a lexeme into a single example using a conjunction – **zeugma**

Which of those flights *serve* breakfast?
Does WestCoast Express *serve* Mangalore?
?Does WestCoast Express *serve* breakfast and Mangalore?

- ▣ No single sense of *serve* for both breakfast and Mangalore
- ▣ Concept in first example *serve* cannot be applied in any meaningful way to Mangalore

Relations between Senses

- ▣ Relations that hold among word senses
 - Synonymy
 - Antonymy
 - Hyponymy

Synonymy

- Different lexemes with the same meaning
couch/sofa vomit/throw up car/automobile
- Two words are **synonymous** if they are substitutable one for other in any sentence without changing the truth conditions of the sentence
- *big* and *large* seem to be synonyms in following:

How **big** is that plane?

Would I be flying on a **large** or small plane?



Synonymy

- ❑ We can not substitute large for big:

Miss Nelson, became a kind of **big** sister to Benjamin.
?Miss Nelson, became a kind of **large** sister to Benjamin.

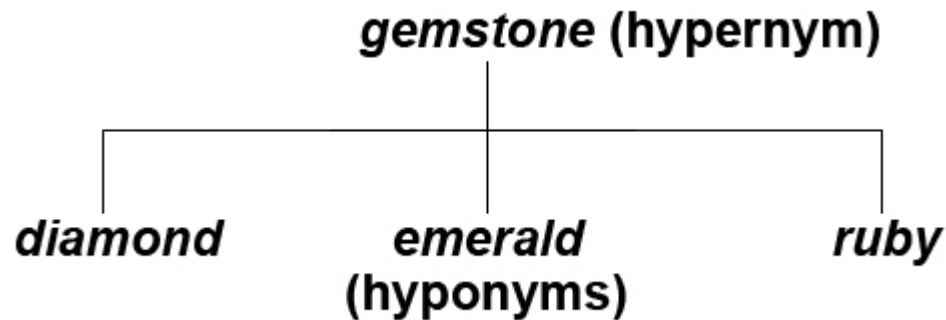
- ❑ *big* has a sense – being older, grown up – while *large* lacks this sense
- ❑ No two words are absolutely identical in meaning
- ❑ In practice, *synonym* is commonly used to describe a relationship of approximate or rough synonymy

Antonymy

- ▣ Words with opposite meaning are Antonyms
- ▣ Two senses can be antonyms if they define a binary opposition or are at opposite ends of some scale
long/short, fast/slow, big/little, cold/hot, up/down
- ▣ One perspective, antonyms have very different meanings
- ▣ Another perspective, they have similar meaning – since they share all aspects of their meaning except their position on a scale or their direction
- ▣ Distinguishing synonyms from antonyms can be difficult

Hyponymy

- ❑ One lexeme denotes a subclass of the other – **hyponym**
- ❑ *Car* is a hyponym of *vehicle*, *mango* is hyponym of *fruit*
- ❑ Conversely *vehicle* is a **hypernym** of *car*



Exercise

□ Homonymy? Polysemy? Synonymy?

- hey what's  , bro, you're already home,  ? i just  the office, so wanted to check if you'd be  for some plan...?

Next Topic

▣ Internal Structure of Words

