

Word Sense Disambiguation

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WSD

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Meaning ...

- **Word Sense Disambiguation (WSD)** is a computational task in natural language processing (NLP) that involves determining which sense of a word is being used in a given context.
- Sense Inventory usually comes from a dictionary or thesaurus.
- Word Sense Disambiguation select the correct sense in context.

How Many Word Senses?

Words sometimes have many more than two senses,

- **[FUNCTION]**: The tree stump served as a table
- **[CONTRIBUTE TO]**: His evasive replies only served to heighten suspicion
- **[PROVIDE]**: We serve only the rawest fish
- **[ENLIST]**: She served in an elite combat unit
- **[JAIL]**: He served six years for a crime he didn't commit
- **[LEGAL]**: They were served with subpoenas

Polysemy

- **Polysemy** refers to a single word having multiple related meanings.
- These meanings are typically extensions of the original sense of the word.

Example:

- The word "bank" can mean: A financial institution where you save money. **OR**
- The side of a river (a river bank).

Homonymy

- **Homonymy** involves words that sound the same (homophones) or are spelled the same (homographs) but have completely different meanings.

Example:

- "Bat" an implement used in sports like baseball.
- "Bat" a flying mammal.
- Can be homophones, homographs, or both:
 - **Homophones:** Write and right, Piece and peace

Contd ...

- Homographs:

Example:

- "Lead" - to guide or direct.
- "Lead" - a type of metal.

Synonym

- **Synonymy** is when two or more different words have the same or very similar meanings.
- Two lexemes are synonyms if they can be successfully substituted for each other in many situations

Example:

- Big and large
- Begin and "start"
- couch and sofa
- automobile and car
- vomit and throw up

Antonym

- **Antonymy** refers to words that have opposite meanings.

Example:

- Hot and cold
- Fast and slow
- Dark and light
- Short and long
- Up and down
- In and out

Hyponym

- One sense is a **hyponym** of another if the first sense is more specific, denoting a subclass of the other car is a hyponym of vehicle dog is a hyponym of animal mango is a hyponym of fruit

Example:

- Animal is a hypernym for dog, cat, elephant,
- Fruit is a hypernym for apple, banana, cherry,

Hypernym

- **Hypernymy** is the relationship between a general term and more specific terms.
- The general term is called the hypernym.
- Hypernym/superordinate (Conversely)
- Vehicle is a hypernym/superordinate of car
- animal is a hypernym of dog
- fruit is a hypernym of mango

Summary Chart

Term	Definition	Example
Polysemy	A single word with multiple related meanings	"Bank" (financial institution, river side)
Homonymy	Words that sound or are spelled the same but have different meanings	"Bat" (animal, sports equipment)
Synonymy	Different words with the same or similar meanings	"Big" and "large"
Antonymy	Words with opposite meanings	"Hot" and "cold"
Hypernymy	A general term that encompasses more specific terms	"Animal" (hypernym for dog, cat, etc.)
Hyponymy	A specific term that falls under a more general term	"Dog" (hyponym of animal)

Reading Assignment

- Meronymy
- Holonymy