Word Meaning IV

HUL 243

9th Sep 2024

Word relations

- Ambiguity, vagueness and polysemy
- Psychological experiments on ambiguity

Synonymy

- Synonyms are phonological words which have the same or very similar meaning
  - English appears to have several synonyms due to the influence from other languages
  - Below are some synonyms from English with diverse origin

Anglo-Saxon	brotherly	world	kingly
French	fraternal	universe	royal
Latin			regal

  - Usually, one of the synonyms is more in common use (e.g. *royal* is more common than *kingly*
  - Generally though, why would two words with exactly the same meaning survive in the language?

Origin of Synonyms

1. Dialects of the language

US English	fall	faucet
British English	autumn	tap

- We note that broadly, there are differences in terms of lexicon, pronounciation in British and American English (although they are mutually intellegible)
- Hence they are considered dialects of English: as are Singapore English, Australian English, Indian English etc.
- Within British English there are also regional varieties (London, Liverpool etc). Similar is the case with the US

1. Register: variety of a language used for a particular situation

Neutral	nasty	man
Formal	obnoxious	gentleman
Colloquial	yucky	chap

- In the above example, the three are ostensibly synonyms, but can be used appropriately only in a given social situation

Distributional effects in Synonymy

1. Synonyms may not always occur in the same contexts: they may be collocationally restricted

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a large house	?a large sister
strong tea	strong man
?powerful tea	powerful man

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- If substitution is a test for synonymy, then it doesn't always work
- It appears that words are completely interchangeable in certain environments only
- E.g. deep and profound can be used with *sympathy* but not *water*
- This seems to indicate that there are no true synonyms

- I'll go to the shop and ____ some bread
- Can we have 'true' synonyms here?
- The items only appear synonymous in the similar context

Antonymy

- The term **antonymy** is used for 'oppositeness of meaning': words that are opposite are antonyms
- While languages may/may not have a true need for synonymy, antonymy is a regular and natural feature of the language
- However, there are different kinds of 'oppositeness' and we should distinguish between them

Simple antonymy

- This is a relation between words when the negative of one implies the positive of the other.
- These are also called complementary pairs or binary pairs
  - dead or alive (of animals)
  - pass or fail
  - hit or miss
- ??? My pet python is dead but luckily it's still alive

Gradable antonyms

- These are opposites where the positive of one term does not imply the negative of the other
  - rich -poor
  - young - old
  - beautiful - ugly
- All these pairs have in common the fact that they may be seen in terms of degrees of the quality involved
- A person may be *rich* or *very rich*, and another may be *richer* than the other
- Each of these terms can only be understood in terms of being older, richer, younger than something
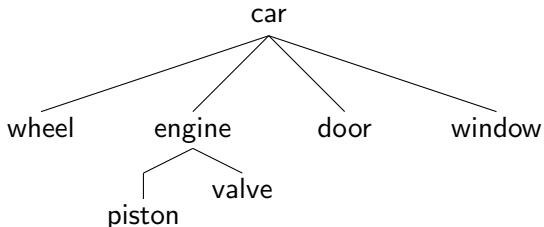- Intermediate terms may exist: hot (warm, tepid, cool) cold

Reverses

- Reverse relations can be described between terms that involve movement
  - push - pull
  - come - go
  - ascend - descend
  - up - down
  - expand - contract
  - fill -empty
- These describe movement in one direction vs. the opposite direction; also to processes that can be reversed

Converses

- Converses describe a relation between two entities from alternate viewpoints
  - above - below
  - employer - employee
  - own - belong to
- Alan owns this book – This book belongs to Alan
- Helen is David's employer – David is Helen's employee
- These also explain **paraphrases**:
  - My office is above the library
  - The library is below my office

Meronymy

- Meronymy is a term used to describe part-whole relationship between lexical items
- The terms *cover* and *page* are meronyms of *book*
- We can identify this relationship using a test like *X is a part of Y* : A page is a part of a book
- Meronymy reflects some hierarchical classifications in the lexicon

- Meronymic hierarchy
- Meronyms may vary in how *necessary* the part is to the whole
- *nose* is a meronym of *face* but *collar* need not be a meronym of *shirt*

```
                        car
              /      /    |     \
          wheel   engine  door  window
                  /   \
              piston  valve
```

Hyponymy and Meronymy

- Hyponymy is transitive: if a *kestrel* is a hyponym of *hawk*, and *hawk* is a hyponym of *bird*, then *kestrel* is a hyponym of *bird*
- Meronymy may or may not be transitive:
- *nail* is a meronym of *finger* and *finger* is a meronym of *hand* $\rightarrow$ transitive
- But *pane- window*; *window – room* but *pane* is not a meronym of *room*
- It is possible to segment an item in countless ways- but only some of these are encoded in the language

Other relations

- Member- collection
  - ship - fleet
  - tree - forest
  - bird - flock
  - fish - shoal
- Portion -mass
  - drop of liquid
  - grain of salt
  - strand of hair
  - sheet of paper

A lexical network

- WordNet developed by linguists and psychologists at Princeton (Miller, Felbaum etc)
- Organization based on a division into 4 categories: nouns, verbs, adjectives and adverbs (no function words)
- Within these categories, words are hierarchically arranged
- English WordNet was followed by others in many languages (IndoWordNet)
- WordNet can be viewed as a graph whose nodes are **synsets** and edges are semantic relations between those synsets

Lexical

- The word bank when used as a noun has the following synsets in WordNet

- **S:** (n) **bank** (sloping land (especially the slope beside a body of water)) *"they pulled the canoe up on the bank"; "he sat on the bank of the river and watched the currents"*
  - *direct hyponym / full hyponym*
    - **S:** (n) riverside, riverside (the bank of a river)
    - **S:** (n) waterside (land bordering a body of water)
  - *direct hypernym / **inherited hypernym** / sister term*
    - **S:** (n) slope, incline, side (an elevated geological formation) *"he climbed the steep slope"; "the house was built on the side of a mountain"*
      - **S:** (n) geological formation, formation ((geology) the geological features of the earth)
        - **S:** (n) object, physical object (a tangible and visible entity; an entity that can cast a shadow) *"it was full of rackets, balls and other objects"*
          - **S:** (n) physical entity (an entity that has physical existence)
            - **S:** (n) entity (that which is perceived or known or inferred to have its own distinct existence (living or nonliving))

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- WordNet senses are famously fine-grained and detailed

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- **Adjectives** and **adverbs** are not arranged in is-a hierarchies (other relations like antonymy e.g. *good* and *bad*)

Lexical Knowledge Bases

- Resources like WordNet are examples of Lexical Knowledge Bases (LKB), used to compute various lexical relationships between words
- While WordNet (including its multilingual versions) is one of the oldest, and most well-known LKB, others have also been used:-
  - Digital versions of thesauri like *Roget's Thesaurus* for English
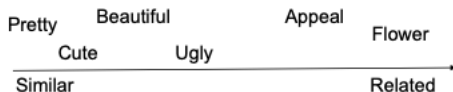
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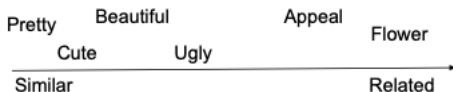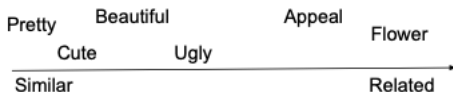
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Pretty   Beautiful   Appeal
    Cute   Ugly   Flower
Similar   Related

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- When we use a structured LKB like WordNet to compute similarity, it is a **knowledge-based** approach to semantic similarity

References

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