What do words actually mean and how do we represent their meanings?

Predictable Spoiler: It’s complicated.
OUR ROADMAP

- Review of meaning relationships and more philosophical contemplation
- Experimental work on concepts
- Synonymy, ambiguity, and vagueness
- Neuroscientific research on polysemy and homophony

- **Homophones/homonyms**: Words that sound the same, but have different meanings.
  
  (1) threw/through

- **Polysemy**: Polysemous words also sound the same, and their meanings are closely related.
  
  (2) a. The cat crawled through the open window.
  
  b. The window for submitting proposals to the foundation is now closed.

- **Synonyms**: Almost identical meanings.
  
  (3) confused – lost  (*lost in the woods and lost in class are polysemous*)

- **Antonyms**: Opposites. Different types of antonyms.
  
  **Complementary pairs**: one member of the pair means **not** the other member of the pair.
  
  (4) honest - deceitful

  **Gradable pairs**: the meaning is determined by the context or what the adjective is describing. The meanings are not absolute.
  
  (5) easy - hard

  Earning an average GPA at a competitive school might be hard, while earning a high GPA at a school that admits everyone might be easy.

  **Relational Opposites**: display symmetry in relation to each other; one usually requires the other.
  
  (6) contractor - developer

No entailment with gradable adjectives

(7) a. This is yellow.
  
  b. This is a fountain pen.
  
  c. This is a yellow fountain pen.

  - a & b entail c

(8) a. This is big.
  
  b. This is a sperm whale.
  
  c. This is a big sperm whale.

  - a & b do not entail c.

  - *Yellow is not gradable. Well, it’s less obviously gradable than big.*
“WE MUST NOT CONFUSE THE MEANING OF A WORD WITH DETAILS ABOUT HOW THE THINGS THAT THAT WORD DESIGNATES ARE IN FACT PRODUCED OR USED.”

(Elbourne 2011:4)

Chairs need not be moveable, have four legs, used to seat one person, or even designed to be sat upon at all.
**What is knowledge?**

- Even if we settle on a meaning for a word, how do we “know” what the meaning is?
- One perspective: *Knowledge as justified true belief.*
- Knowing is a kind of believing. And if you know some proposition, then that proposition has to be true.
  - “You cannot know that trepanning cures people of demonic possession because it is not true that trepanning cures people of demonic possession.” (p. 6)
  - A madman can shout out true statements and also believe that he is Napoleon.
    - The belief that he is Napoleon is not justified, so it isn’t actually knowledge.
The Gettier Problem

- Smith and Jones apply for the same job.
- Before the results are announced:
  - Smith finds that there are 10 coins in Jones’s pocket.
  - President of the company tells Smith that Jones will get the job.
- Smith justifiably believes that Jones will get the job and that Jones has 10 coins.
  - Smith deduces that the man who has 10 coins will get the job.
- Smith gets the job. But, he didn’t know that at the time he discovered that Jones had 10 coins, he also had 10 coins.
- Smith’s belief that the man who had 10 coins would get the job is both true and justified.
- “But it is discomfiting in the extreme to say that Smith knew that the man who would get the job had ten coins in his pocket.” (p.7)

Edmund Gettier

Edmund Gettier wrote an article which provides several examples of examples of beliefs that are both true and justified, but that he claims we should not call ‘knowledge’

Cases of this sort are now called ‘Gettier-counter-examples’
The Word-World Relationship

Referring to the Theory of Meaning:

- **Platonism:** allows for abstract objects
  - Abstract objects don’t have spatio-temporal location
  - Abstract objects don’t participate in causal relationships
  - Santa Claus maps to a thing but that thing cannot be the cause of or bear the consequences of other events
  - A rock can cause someone to have a concussion.
  - A glass can shatter as a result of falling.

- **Nominalism:** no abstract objects
  - Ockham’s Razor: If we can do without abstract objects, then we should.
  - Epistemological argument against Platonism
  - If abstract objects cannot be spatio-temporally located – and if they don’t participate in causal relationships – how do we acquire knowledge of them?
  - Acquiring knowledge of something is an event which has a consequence.

- **Internalist Theory of Meaning:** Meaning resides in the minds of speakers
  - Words are mental entities comprised of phonological, syntactic, semantic, orthographical information.
  - We each have our own ‘chairs.’
  - Numerical difference: separate objects residing in different places.
  - Numerical identity: exactly one object (Clark Kent and Superman)
  - Qualitative difference/identity/similarity:
    - > car of same make and color are qualitatively similar but numerically different
  - **Meanings are numerically different.** Speakers have their own individual chairs residing in their minds.

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**Aristotle** (384-322 BC): ‘Spoken words are symbols of mental experiences.” (p. 22)

**Locke** (1632-1704): ‘...words in their primary or immediate signification, stand for nothing but the ideas in the mind of him that uses them.’ (p. 23)

**Frege** (1848-1925): If meaning resides in the minds of speakers, it is possible for different speakers to have different meanings for what would be agreed upon to be the same word.

**John Stuart Mill** (1806-1873): ‘When I say, “the sun is the cause of the day,” I do not mean that my idea of the sun causes or excites in me the idea of the day...” If word meaning is just in our heads, how do we use words to talk about the outside world?
There are no individual languages.

“If language is purely psychological, and individual speakers’ language faculties are the only linguistic things there are, there is no place for any separate object ‘English.’ There are just lots of groups of human beings with language faculties that resemble each other in sufficient detail for communication to be able to take place; one of these groups we informally call ‘English-speakers,’ another one ‘French-speakers,’ and so on.” (p.24)
FROM A PSYCHOLOGY PERSPECTIVE: A LOOK AT “CONCEPTS”
**Prototype Theory**

- Concepts are mental representations that allow us to classify things
  - Summary of the properties of a “thing” and an assessment of the level of importance for each property – e.g., what’s “typical”

- Jerry Fodor: prototype theory fails to account for compositionality
  - E.g. pet fish – brightly colored, small, lives in bowl or small tank. But, neither pets nor fish individually have these properties

- Back to philosophy: Gottlob Frege - if word meanings are internal, then it’s possible for different people to have different meanings attached to the same word
  - If numerically distinct meanings are not qualitatively identical, there can be breakdowns in communication.
    - E.g. “deer license”
THE HANDKERCHIEF-CLOTHING EXPERIMENT

- 1978: Princeton psychologists McCloskey and Glucksberg
- 30 Princeton undergrads tested twice, one month apart
- Handkerchief as clothing - 45% yes, 55% no
- Curtains as furniture - 30% yes, 70% no
- Lobsters as fish 47% yes, 53% no
- But...some participants changed their minds during the second test.

The moral of the story: Speakers are incredibly fickle (as we’ve seen with our so-far brief discussion of binding).

But...the internalist theory isn’t turned on its head. Speakers simply alter their individual numerically distinct meanings.
SYNONYMY, AMBIGUITY, AND VAGUENESS
SYNONYMY

Synonymy from the internalist perspective:
- Numerically identical: one concept - someone’s mind has two (or more) different words
- Qualitatively identical: two words, either in 1 person’s or more than 1 person’s mind; realized as two different words

_Napkin_ and _serviette_: same intension even though the different words are used by different social classes
- Maybe sociolinguistic features are also part of a word - just like phonological, syntactic, semantic, orthographic information

_Couch_ and _sofa_
- A psychologist has a couch at the office and a sofa at home.
  - (I don’t agree with this distinction; could be more of a British English distinction.)

Aha! Apparently _gorse_ is synonymous with _furze_.

Ling 340 ~ Fall 2015 ~ Cherlon Ussery
• The linguistic use of “vague” differs from the philosophical use. The above description is “generality” for philosophers. “Vague” refers to borderline words – e.g. at what point is someone bald? “Vagueness, in this sense as in the other, afflicts a huge proportion of natural language words.” (p.36)
TWO KINDS OF AMBIGUITY

POLYSEMY: one word, many meanings (senses)

HOMOPHONY: ≥ word – different meanings that happen to be pronounced the same

Phonological features | Syntactic features
--- | ---
Semantic Info
Semantic Info
Semantic Info

Phonological features | Syntactic features | Phonomological features
--- | --- | ---
Semantic Info
Semantic Info
Semantic Info

One lexical entry

Multiple lexical entries
Bank vs Column

- *Bank* is traditionally categorized as homophonous while *column* is traditionally categorized as polysemous.

- BUT, are the different senses of *column* actually related?

- Elbourne: No, the journalistic sense is distinct from the architectural sense.

- The Big Picture Question: Is polysemy really homophony??
PYLKKÄNEN, LLINÁS, AND MURPHY (2006)

- MEG (magnetoencephalography): Measures magnetic fields generated by electrical currents in the brain.
- M350: Surge of magnetic amplitude on the left temporal cortex (of right-handed people) between 300 and 400 milliseconds after visual presentation of a word.
- 17 subjects read and responded to homophonous and polysemous words.

3 findings...
Subjects were slower to “locate” a word if they have just seen a homophone.

River...bank vs salty...dish

Savings...bank takes longer to activate after river...bank (355 msec) than after salty...dish (334 msec)

Suggests that processing faculties are confused by phonological similarity.

Finding 1: PHONOLOGICAL INHIBITION

Finding 2: SEMANTIC PRIMING

Lined...paper followed by monthly...magazine (345 msec)
  • Paper and magazine are related.

Clock...tick followed by monthly...magazine (367 msec)
  • Tick and magazine are not related.

Suggests that semantically related but phonologically unrelated word speeds up activation.
FINDING 3: EVIDENCE OF POLYSEMY

That boring, liberal paper just fired its best writers. It’s not worth the paper it’s printed on.
- If the two senses of paper are separate lexical entries, they are simultaneously homophones and semantically related words.
  - Same pronunciation but different meanings
  - Meanings are semantically related like paper...magazine

lined...paper followed by liberal...paper  versus  unrelated control (e.g. clock...tick) followed by liberal...paper
- If homophonous (multiple words), prediction was that there would be little/no difference between the two conditions.
- Phonological inhibition should slow the time and semantic priming should increase the time, so the two effects should cancel out.
- If polysemous (one word), prediction was that liberal...paper would be faster when preceded by lined...paper.
- If just one word, “repetition priming” speeds up timing. People are faster locating a word when exposed to the same word shortly before.

Polysemy is real!
- lined...paper followed by liberal...paper  (337 msec)
- clock...tick followed by liberal...paper  (361 msec)
SUMMARY

- The Gettier Problem challenges the notion of justified true belief.
- The Internalist Theory meaning is better equipped to handle the complexity that speakers themselves bring to the meaning of “meaning.”
- We have evidence of: phonological inhibition, semantic priming, and polysemous representations.