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

"...it is unclear that anyone has ever come up with an adequate definition of any word whatsoever, even the simplest." [p. 1]
OUR ROADMAP

- Some philosophical contemplation on knowledge and meaning
- Experimental work on concepts
- Synonymy, ambiguity, and vagueness
- Neuroscientific research on polysemy and homophony

“...some linguists think that languages like English and Spanish do not exist...some philosophers think that Santa Claus does exist.”
“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.*
Different Perspectives

- **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.” (p. 29)

- **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?” (p.24)
TWO THEORIES OF WORD MEANING

Meanings of words are things in the world. **Referential**

*Iceland* means “the huge chunk of rock and ice in the northern Atlantic Ocean.” (Elbourne 2011:14)

A neat and clean way to handle “easily identifiable” objects and to ensure that speakers are on the same page.

But, “bizarre entities” such as Santa Claus have to be posited as existing.
Meanings are ideas, concepts in the minds of individuals.

We each have our own concept of Iceland and we use the word Iceland to talk about that concept. (p.15)

- e.g. – My concept of Iceland includes fantastic restaurants, so if I go there at some point and find that my favorite places have been replaced by lower quality establishments, I would likely say:
  - *Iceland just isn’t Iceland anymore.*

This approach allows for more nuanced meanings, but we “cannot rule out that the associated concepts are significantly different ...seems to allow drastic failures of communication.” (p.15)

*Internalist*
Meaning picks out things that “exist” in the world, but what actually exists?

- **Platonism**: there are concrete objects and 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
  - Ockhams Razor: If we can do without abstract objects, then we should.
  - 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.
“Santa Claus does not exist.”

[p.22]

- This sentence presupposes that Santa Claus is a concrete object. It’s not denying the existence of an abstract object.

- “And when the non-existence of Santa Claus poses a problem for your theory, it is time to look for a new theory.” [p.22]
Meaning resides in the minds of speakers

Words are mental entities comprised of phonological, syntactic, semantic, orthographical information.

**Meanings are numerically different.** Speakers have their own individual *chairs* residing in their minds.
Maybe the internalist perspective better captures the complexity of meaning.

**Synonyms**: Almost identical meanings.
confused – lost

**Antonyms**:
- *Complementary pairs*: one member of the pair means not the other member of the pair.
  *honest* - *deceitful*
- *Gradable pairs*: the meaning is determined by the context or what the adjective is describing. The meanings are not absolute.
  *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.
THE CHOMSKYAN TAKE ON THINGS

- Humans are equipped with a mental lexicon as part of the language faculty.
- Words are mental entities consisting of phonological information, syntactic information, and semantic information.

“As for the precise form that this semantic information takes, Chomsky has little to say; it is deeply mysterious.” [p.23]

Per the internalist theory, Santa Claus exists! We have a concept of Santa Claus.
THE INTERNALIST THEORY AND UG

- 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)
Back to formal notation...

\( \lambda x. \text{wine} \ (x) \). The meaning of wine is expressed as a function because it is a common noun. Some entity has the property of being wine iff it has the requisite characteristics.

“...general terms stand for properties.” [p. 17]

- We won’t choose between the referential and internalist approaches.
- Wine either picks out a discrete thing in the world with a fixed set of properties or wine picks out our individual concepts of wine.
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.
  - But the other statements can be 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 actually 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’
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
  - BUT...this seems totally intuitive.
    - Student A: "Semantics is boring."
    - Every other student: “Um, no it’s not!”
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.
- But...the internalist theory isn’t turned on its head. Speakers simply alter their individual distinct meanings.
SYNONYMY, AMBIGUITY, AND VAGUENESS
SYNONYMY

Synonymy from the internalist perspective:
- Numerically identical meanings: one concept - someone’s mind has two (or more) different words
- Qualitatively identical meanings: 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.)

Apparently *gorse* is synonymous with *furze.*
More than one meaning

Chair: that thing that we’ve struggled to define
- Related to sitting...maybe
- Related to being in charge (chair of the department)

Meaning doesn’t distinguish between ≥2 kinds of things

Horse: racehorse, carthorse, charger
- Also ambiguous: heroin, ropes on sailboats

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)

<table>
<thead>
<tr>
<th>Phonological features</th>
<th>Syntactic features</th>
<th>Semantic Info</th>
<th>Semantic Info</th>
<th>Semantic Info</th>
</tr>
</thead>
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*shop*: for clothes, for a college, for a date on Tinder

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

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</table>

*bank*
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??
PYLKÄNNEN, 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.

“So if you have to find a word in your mental lexicon, you are slowed down if you have just seen a homonym of it – it is as if your processing faculties are confused by having seen something phonologically similar that is not in fact the word they are after.” [p.39]
Finding 2: SEMANTIC PRIMING

- Subjects faster to locate a word that has been semantically activated

- 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.

“So if you have to find a word in your mental lexicon, you are speeded up if you have just seen a semantically related (but phonologically unrelated) word.” [p.40]
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
- Phonological inhibition and semantic priming should cancel out each other
THE STUDY

- 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 than when preceded by clock...tick.
  - If just one word, “repetition priming” speeds up timing. People are faster locating a word when exposed to the same word shortly before.
FINDING 3: EVIDENCE OF POLYSEMY

- 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.