The study of words

- What does a word mean?
- To what extent is it a linguistic matter?
- To what extent is it a matter of world knowledge?

Lexical semantics

- = meanings of morphemes and words
  - semantics overlaps with morphology
- Some meaning relations
  - Synonymy
  - Ambiguity
  - Antonymy
  - Hyponymy and hypernymy

Synonymy

- If A is synonymous with B,
  - A and B mean the same thing, A can be paraphrased by B
- Synonymous words
  - postpone = put off
  - vomit = throw up
  - couch = sofa
Ambiguity

- A linguistic expression is ambiguous if it supports two or more possible interpretations.
  - Scope
  - Syntactic (structural)
  - Lexical

Scope Ambiguity

- Everyone in Boston is following one baseball team.
  - There is one baseball team that everyone in Boston is following (e.g., Red Sox)
  - Everyone in Boston is following one team or another (e.g., Red Sox, Yankees, Tigers, Cardinals)

Syntactic Ambiguity

- [ [Competent women] and men] have all the good jobs in the company.
- [Competent [women and men]] have all the good jobs in the company.

Lexical Ambiguity

- Arises when a single word is associated with more than one meaning.
- You should have seen the bull we got from the Pope.
  - Papal communication
  - Male cow
  - nonsense
Lexical and Syntactic Ambiguity

- Mary claims that John saw **her** duck.
- John claims that Mary saw **his/him** duck.

Lexical Ambiguity

- Polysemy vs. homophony
- Polysemous morpheme
  - meaning$_1$
  - e.g. **hard**
    - “difficult”
    - “durable, solid”
  - meaning$_2$
- Single lexical entry

Homophony

- Homophones
  - morpheme$_1$
    - meaning$_1$
    - e.g. **pass** (‘I’m going to pass’)
      - ‘abstain’
      - ‘succeed’
  - morpheme$_2$
    - meaning$_2$
- Distinct lexical entries

Puns and Zeugmas

Ambiguous words used in different senses in parallel syntactic construction.

- ‘water’: ‘pour water into’, ‘dilute with water’
  - Dave watered the plants, and Rose, the drinks.
- ‘suggest’: ‘advise verbally’, ‘indicate’
  - The fuel indicator and Mary suggest we get some gas.
Synonymy

- Semantic equivalence. Synonyms can be substituted for each other without affecting a sentence’s truth value.
  - Youth/adolescent
  - Automobile/car
  - Remember/recall
  - Purchase/buy

Synonymy Problems

- A big house = a large house
- A big sister ≠ a large sister

Antonymy

- If A is an antonym of B, then A means the opposite of B
  - Non-gradable antonymy (complementarity)
  - Gradable antonymy (contrary)

Non-gradable antonymy

- e.g. ‘married’ vs. ‘single’
  - if ‘married’ then ‘not single’ and
  - if ‘single’ then ‘not married’
- ‘dead’ vs. ‘alive’
- ‘over’ vs. ‘under’
Gradable antonymy

Gradable pairs (typically adjectives)
- meanings are relatively subjective
- may depend on context
- e.g. ‘big’ vs. ‘small’

Gradable antonyms
- Tall vs. short, cute vs. ugly, etc.
- Meanings can be further modified
  - Comparative and superlative forms
    - ‘tallest’, ‘cuter’, etc.
  - Modify with ‘quite’, ‘very’, etc.
    - ‘really cute’

More on antonymy
- Gradable/nongradable distinction often blurred by language users. Nongradable antonyms:
  - ‘half dead’, ‘barely alive’, ‘more dead than alive’, ‘quite pregnant’
- Antonyms often not in equal use:
  - ‘How heavy is it?’ (not: ‘How light is it?’)
  - ‘How tall is he?’ (not: ‘How short is he?’)
  - ‘Marital status’ (not: ‘Single status’)

Hyponymy and hypernymy
- If B is a hyponym of A, then
  - the meaning of B is a special case of A
- If A is a hypernym of B, then
  - the meaning of A is a more general instance of B
**Hyponyms: nouns**

- Animal
  - Bird
    - Sparrow
  - Bug
  - Human
  - Animal
    - Dog
    - Cat
    - Cow
    - Snake
    - Quail
    - Turkey
    - Chicken

**Hyponymy: adjectives**

- Colored (‘contains color’)
  - Red
  - Yellow
  - Blue
  - Purple
  - Black
  - Green
  - Turquoise
  - Royal Blue

**Hyponymy: verbs**

- Dance
- Slice
- Drive

<table>
<thead>
<tr>
<th>hyponym</th>
<th>hypernym</th>
</tr>
</thead>
<tbody>
<tr>
<td>dance</td>
<td>move</td>
</tr>
<tr>
<td>slice</td>
<td>cut</td>
</tr>
<tr>
<td>drive</td>
<td>motate</td>
</tr>
</tbody>
</table>

**Productive ways of forming hyponyms**

<table>
<thead>
<tr>
<th>strategy</th>
<th>hyponym</th>
</tr>
</thead>
<tbody>
<tr>
<td>adjectival/sentential modification</td>
<td>car flower</td>
</tr>
<tr>
<td></td>
<td>the flower I picked last night</td>
</tr>
<tr>
<td>compounding</td>
<td>pickle rage</td>
</tr>
<tr>
<td></td>
<td>dill pickle</td>
</tr>
<tr>
<td></td>
<td>road rage</td>
</tr>
<tr>
<td>adverbial modification</td>
<td>interesting</td>
</tr>
<tr>
<td></td>
<td>incredibly interesting</td>
</tr>
</tbody>
</table>
Caveats re adjectival modification

- Anti-intersection adjectives (require negation of noun with which they combine):
  
<table>
<thead>
<tr>
<th></th>
<th>is not a hyponym of:</th>
</tr>
</thead>
<tbody>
<tr>
<td>fake $100 bill</td>
<td>$100 bill</td>
</tr>
<tr>
<td>the former president</td>
<td>the president (i.e. current)</td>
</tr>
<tr>
<td>phony offer</td>
<td>offer</td>
</tr>
</tbody>
</table>

- ‘Non-intersection’ adjectives:
  
<table>
<thead>
<tr>
<th></th>
<th>is not necessarily a hyponym of:</th>
</tr>
</thead>
<tbody>
<tr>
<td>possible solution</td>
<td>solution</td>
</tr>
<tr>
<td>alleged thief</td>
<td>thief</td>
</tr>
</tbody>
</table>

Caveat re compounding

- Exocentric compounds:
  
<table>
<thead>
<tr>
<th></th>
<th>instead hyponym of:</th>
</tr>
</thead>
<tbody>
<tr>
<td>boombox</td>
<td>box</td>
</tr>
<tr>
<td>station wagon</td>
<td>wagon</td>
</tr>
<tr>
<td>soap opera</td>
<td>opera</td>
</tr>
<tr>
<td></td>
<td>sound system</td>
</tr>
<tr>
<td></td>
<td>car</td>
</tr>
<tr>
<td></td>
<td>TV show</td>
</tr>
</tbody>
</table>

Encoding of kinship concepts

- ‘parent’s sibling’
- Other possible concepts:
  - sex: not specified, male, female
  - side of family: not specified, maternal, paternal
- $3 \times 3 = 9$ possible distinct concepts
### ‘parent’s sibling’

<table>
<thead>
<tr>
<th>sex of parent’s sibling</th>
<th>side of family</th>
</tr>
</thead>
<tbody>
<tr>
<td>not specified</td>
<td>not specified</td>
</tr>
<tr>
<td>maternal</td>
<td>paternal</td>
</tr>
<tr>
<td>female</td>
<td>not specified</td>
</tr>
<tr>
<td>male</td>
<td>not specified</td>
</tr>
<tr>
<td>maternal</td>
<td>paternal</td>
</tr>
<tr>
<td>female</td>
<td>paternal</td>
</tr>
<tr>
<td>male</td>
<td>not specified</td>
</tr>
<tr>
<td>maternal</td>
<td>not specified</td>
</tr>
<tr>
<td>female</td>
<td>not specified</td>
</tr>
<tr>
<td>male</td>
<td>paternal</td>
</tr>
</tbody>
</table>

### Lexical semantics summary

- Relations between meanings of lexical items
  - Synonymy, antonymy, ambiguity (polysemy, homophony), hyponymy
  - Cross-linguistic variation in meanings encoded by morphemes