What is Semantics?

Semantics is the study of the meaning of words, phrases, and sentences.
When we define words, we deal with the **conceptual** meaning rather than the **associative** meaning.

What is the difference?
Meaning

Conceptual meaning:
- **Needle** = thin, sharp, steel, instrument
- **Low-calorie** = producing a small amount of heat or energy

Associative meaning:
- **Needle** = pain, illness, blood, drugs, thread, knitting, hard to find.
- **Low calorie** = healthy
- Associative connotations related to a word.
- These associations differ from a person to another.
Meaning

Poets, song-writers, novelists, literary critics, advertisers and lovers

Associative Meaning

In linguistic semantics

Conceptual Meaning
Semantic Features

- The hamburger ate the boy
- The table listens to the radio
- The horse is reading the newspaper

- The oddness of these sentences does not derive from their syntactic structure.
- According to the basic syntactic rules for forming English sentences, we have well-formed structures.

```
NP  V  NP
The hamburger  ate  the boy
```
This sentence is syntactically good, but semantically odd.

Since the sentence *The boy ate the hamburger* is perfectly acceptable, we may be able to identify the source of the problem.

The components of the conceptual meaning of the noun *hamburger* must be significantly different from those of the noun *boy*.

The kind of noun that can be the subject of the verb *ate* must denote an entity that is capable of ‘eating’.

The noun *hamburger* does not have this property and the noun *boy* does.
Semantic Features

- We can make this observation applicable by trying to determine the important features of meaning that any noun must have in order to be used as the subject of the verb *ate*.

- Feature = animate being

  *boy*: + animate  \[+ = 	ext{has the feature}\]

  *hamburger*: – animate  \[– = 	ext{doesn't have the feature}\]
# Semantic Features

<table>
<thead>
<tr>
<th></th>
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<th>horse</th>
<th>boy</th>
<th>man</th>
<th>girl</th>
<th>woman</th>
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</tbody>
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- The word *girl* involves the elements [+ human, + female, - adult]
- Syntactic analysis + semantic features:

  The ________________ is reading the newspaper

  N [+human]
Semantic Roles

- Instead of thinking of words as ‘containers’ of meaning, we can look at the ‘roles’ they play.

- *The boy kicked the ball*

- The verb describes an action (kick)

- The noun phrases describe the roles of entities, such as people & things, involved in the action.

- We can identify a small number of semantic roles (thematic roles) for these noun phrases.
Semantic Roles

- Agent
- Theme
- Instrument
- Experiencer
- Location
- Source
- Goal
Agent and Theme

The boy kicked the ball

- **Agent**
  - the entity that performs the action
  - **the boy**

- **Theme**
  - the entity that is involved or affected by the action
  - **the ball**

- the entity that is simply being described
  - **the ball is red**
Agent and Theme

- Although **agents** are typically **human**, they can also be **non-human** entities that cause actions.
- as in noun phrases denoting:
  - A natural force  
    (the wind blew the ball away)
  - A machine  
    (A car ran over the ball)
  - A creature  
    (The dog caught the ball)
Agent and Theme

• The theme is typically non-human, but can be human
  • The dog chased the boy.
• The same physical entity can appear in 2 different semantic roles in a sentence
  • The boy cut himself

the boy = agent
himself = theme
If an agent uses another entity in order to perform an action, that other entity fills the role of instrument.

- The boy cut the rope with an old razor.
- He drew the picture with a pencil.

The NP *an old razor & a pencil* are being used in the semantic role of instrument.
Experiencer

- When a NP is used to represent an entity as the person who has a feeling, perception or state, it fills the role of **experiencer**.
- If we *see, know* or *enjoy* something, we are not really performing an action (so, we are not agents)
- We are in the role of **experiencer**.
  - *The boy* feels sad
  - *Did you* hear *that noise*?
  - The boy = experiencer
  - You = experiencer
  - that noise = theme
Agent Vs Experiencer

According to Ramchand, G.C. (2011),

- **Agent**: A participant which the meaning of the verb specifies as doing or causing something, possibly intentionally.
  - e.g. subjects of kill, eat, hit, smash, kick and watch.

- **Experiencer**: A participant who is characterised as aware of something.
  - e.g. subjects of love, like, enjoy, smell, hear
Location

- A number of other semantic roles represent where an entity is
  - on the table
  - in the room

- Where an entity is fills the role of location.
Source and Goal

- Where an entity moves from is: the **source**
- Where an entity moves to is: the **goal**.
  - *We drove from Jeddah to Riyadh.*
    
    source  goal
  
  - *I transferred the money from saving to checking.*
    
    source  goal
Semantic Roles

• All these semantic roles are illustrated in the following scenario.

  • Mary saw a fly on the wall.
    EXPERIENCER THEME LOCATION

  • She borrowed a magazine from George
    AGENT THEME SOURCE

  • she hit the bug with the magazine.
    AGENT THEME INSTRUMENT

  • She handed the magazine back to George
    AGENT THEME GOAL

  • "Gee thanks," said George
    AGENT
Semantic Roles

• Extra examples:

\[
\begin{align*}
 & I \quad \text{took} \quad \text{the pen} \quad \text{from her} \quad \text{and} \quad \text{gave it to him} \\
& \text{AGENT} \quad \text{THEME} \quad \text{SOURCE} \quad \text{THEME} \quad \text{GOAL}
\end{align*}
\]

\[
\begin{align*}
 & \text{The door is big} \\
& \text{THEME}
\end{align*}
\]
Lexical Relations

- Synonymy
- Antonymy
- Hyponymy
- Prototypes
- Homophones
- Homonyms
- Polysemy
- Metonymy
- Collocations
Lexical Relations

• What is the meaning of the word \textit{conceal}?
• What is the meaning of \textit{shallow}?
• What is the meaning of \textit{Rose}?
• By answering these questions, we are characterizing the meaning of each word, not in terms of its component \textit{features}, but in terms of its \textit{relationship} to other words.
Lexical Relations

- Words can have relationships with each other.
  - *Big*
    - The same as *large* (Synonymy)
  - *Big*
    - The opposite of *small* (Antonymy)
  - *Dog*
    - A kind of *animal* (Hyponymy)

- Lexical relations
Synonymy

- **Synonyms** are two or more words with very closely related meanings.

**Examples:**

- almost/nearly, big/large, broad/wide, buy/purchase,
- cab/taxi, car/automobile, couch/sofa, freedom/liberty.
Synonymy

- They can often, though not always, be substituted for each other in sentences.
  - *What was his answer?*  ✓
  - *What was his reply?*  ✓

- The idea of “sameness” of meaning is not necessarily ‘total sameness’.
- In many occasions, one word is *appropriate* in a sentence, but its synonym is *odd*.
  - *Sandy had only one correct answer on the test.*    ✓
  - *Sandy had only one correct reply on the test.*    ✗

Formal Vs. informal uses

- *My father purchased a large automobile.*
- *My dad bought a big car.*
Antonyms are two forms with opposite meanings.

Examples:
alive/ dead, big/small, fast/slow, happy/sad, hot/cold, long/short, male/female, married/single, old/new, rich/poor, true/false.
Antonymy

Antonyms

Gradable
Opposites along a scale
- e.g. big/ small

Non-gradable
Direct opposites
- e.g. male/ female, married/single, true/false

1- Used in comparative constructions
- e.g. I’m bigger than you
- A pony is smaller than horse

2 – The negative of one member of a gradable pair doesn’t necessarily imply the other.
- e.g. My car isn’t old ≠ My car is new

1- comparative constructions are not normally used
- e.g. dead ✓ deader ✗ more dead ✗

2 – The negative of one member of a non-gradable pair does imply the other member.
- e.g. My grandparents aren’t alive =
- My grandparents are dead
Hyponymy

- **Hyponymy** = when the meaning of one form is included in the meaning of another.

**Examples:**

animal/dog, dog/poodle, vegetable/carrot, flower/rose.

- The concept of ‘inclusion’ involved in this relationship is the idea that if an object is a *rose*, then it is necessarily a *flower*.

  - *rose* is a hyponym of *flower*.

- The relationship of hyponymy = the concept of ‘is kind of’

  - e.g. “an *asp* is a kind of *snake*”
Hyponymy

- Looking at the diagram, we can say that “horse is a hyponym of animal” or “ant is a hyponym of insect”
  - animal = superordinate (= higher level)
  - insect = superordinate
- The 2 or more words that share the same superordinate term are co-hyponyms.
  - Dog & horse are co-hyponyms and the superordinate term is animal.
Hyponymy

• Not only words of ‘things’ but also words of ‘actions’
  • e.g. punch, shoot, stab are co-hyponyms of the superordinate term injure.
Prototypes

• What is the clearest example of the word *bird*?
• What is the clearest example of the word *fruit*?
• What is the clearest example of the word *furniture*?
Prototypes

• “The characteristic instance” of a category is known as the prototype.

• Explain the meaning of certain words in terms of resemblance to the clearest example.
  • Bird
  • Pigeon & sparrow are closer to the prototype than ostrich & penguin.
  • Clothing--- *shirts* are closer than *shoes*.
  • Furniture --- *chair* is closer than *stool*
Homophones

- **Homophones**: Two or more words with different forms and the same pronunciation.

- **Examples**: Bare/bear, meat/meet, flour/flower, pail/pale, right/write, hole/whole, to/too/two.
Homonyms

- **Homonyms**: Two or more words with the same form and pronunciation that are unrelated in meaning.

  - **Examples**: 
    - *bank* (of a river) vs. *bank* (financial institution)
    - *mole* (on skin) vs. *mole* (small animal)
    - *pupil* (at school) vs. *pupil* (in the eye)
    - *race* (contest of speed) vs. *race* (ethnic group)

- Homonyms are words that have separate histories and meanings, but have accidentally come to have exactly the same form and pronunciation.
Polysemy

- **Polysemy**: Two words or more with the same form and pronunciation, and with related meanings.

**Examples:**

- *Head* = the object on top of your body
- *Head* = the person at the top of a company or department.
- *Foot* = of person/ of bed/ of mountain
- *Run* = person does/ water does/ colors does.
Polysemy

- It is possible for two terms to be distinguished via homonymy and via polysemy.
  - **Date** = a thing we eat
  - **Date** = a point in time  \[\text{homonyms}\]

- **Date** = a point in time is polysemous in terms of:
  - a particular day and month (=on a letter)
    - *The date on the letter was 30th August 1962.*
    - *What's today's date?*
  - An arranged meeting (= an appointment)
    - *Let's make a date to come over and visit.*
  - A romantic meeting (=with someone we like)
    - *I've got a date with Andrea tomorrow night.*
  - A person (that person we like)
    - *Can I bring my date to the party*
Metonymy

- A container-contents relation
  - Bottle/water  
    e.g. He drank the whole bottle.
  - Can/juice

- A whole-part relation
  - Car/wheels
  - House/roof

- Representative-symbol relation
  - King/crown
  - The President/ the White House  
    The White House has announced..

- Using one of these words to refer to the other is an example of metonymy.
Metonymy

Other examples:

- 10 Downing Street protested..
- answering the door
- boiling a kettle

- Making sense of such expressions often depends on context, background knowledge and inference.
Collocation

• Which words tend to occur with other words.
  • hammer/ nail
  • table/ chair
  • butter/ bread
  • needle/ thread
  • salt/ pepper
  • Break/ rule, break/promise, break/ heart

• ارق للعادة، خارق للقانون
• يكسر الروتين، يكسر القاعدة

Thank you