



Semantics I

Merlin Balkhash
Department of Linguistics, Rutgers University
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Previously on 201

Midterm

Semantics

- **Lexical Semantics**: the meaning of words (or lexical items)
- **Compositional Semantics**: the meaning beyond words (phrases, sentences, e.g.)

truth value: if a proposition is **TRUE** or **FALSE**

possible worlds: an alternative reality where we want to check on the proposition's **truth value**

Different Meanings in Languages

literal meaning

- **Semantics** studies *literal meaning* in language



implied meaning

- **Pragmatics** studies *implied meaning* in language



social meaning

- **Sociolinguistics** and **Linguistic Anthropology** study *social meaning*.



Semantic Relations

- **synonym:** words that have the same reference / refer to the same set of things in the world
 - **drinks** and **beverages**
- **hyponym:** words whose reference is a **superset** of another words reference
 - **student** is a hyponym to **linguistics student**
- **hyponym:** words whose reference is a **subset** of another words reference
 - **dog** is a hyponym to **mammal**
- **antonym:** words that have opposite meanings



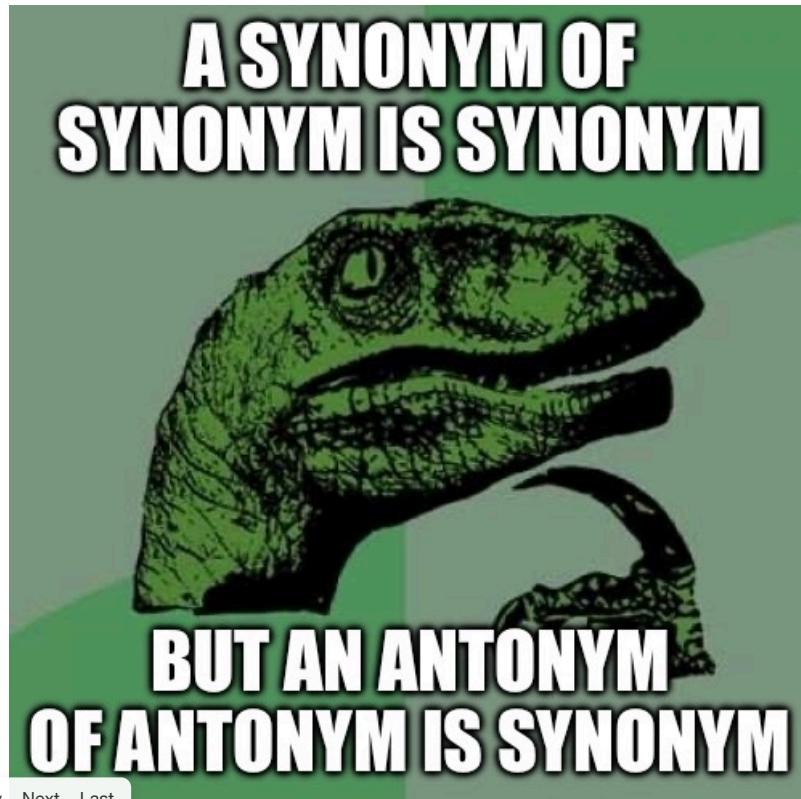
Semantic Relations: Antonyms

- **complementary pairs:** items that can't be in both categories
 - alive vs. dead
- **gradable pairs:** opposite ends of a scale
 - young vs. old
- **reverses:** opposite directions
 - up vs. down
- **converses:** same action, different perspective
 - buy vs. sell



Practices: Semantic Relations

- Are the following word pairs **synonyms**, **antonyms**, or a **hypernym-hyponym pair**? If the last, which is the hypernym and which is the hyponym?



1. bird – avian
2. bird – sparrow
3. bird – animal
4. synonym - antonym (what type?)
5. hypernym - hyponym (what type?)
6. Rutgers - universities
7. Linguistics - Mathematics
8. **MORE?**

ENTAILMENT

sentence **p** entails sentence **q** iff **q** is true whenever **p** is true.

iff: if and only if

"**whenever**": it means you cannot find any possible world,
where **q** is **false** while **p** is **true**

ENTAILMENT

sentence **p** entails sentence **q** iff **q** is true whenever **p** is true.

Merlin is a Linguistics student. *entails* Merlin is a student.

If Merlin is **NOT** a student, it means
there is **NO** possibility for Merlin to be a Linguistics student.

q is true whenever p is true.

Practice I: Entailment

For each pair of sentences, which one entails the other one?

- a. Charles III is the King of the United Kingdom.
b. Queen Elizabeth II was Charles's mother.

- a. I am tired.
b. I am very very very very very tired.

- a. Bob live above a restaurant on Ocean Avenue.
b. Bob and Linda lives above a restaurant on Ocean Avenue.

- a. The kids trick-or-treated on Halloween.
b. The kids trick-or-treated in scary costumes on Halloween.



q is true whenever p is true.

Practice II: Entailment

Work in **GROUP**, think of three sentences that are entailed by each of these sentences:

- a.
The spotted lanternfly is an insect that has spread invasively to New Jersey and can cause damage to forests and fruit crops.
- b.
The starship Enterprise explored strange new worlds, sought out new life and new civilizations, and boldly went where no one had gone before.



q is true whenever p is true.

Practice II: Entailment

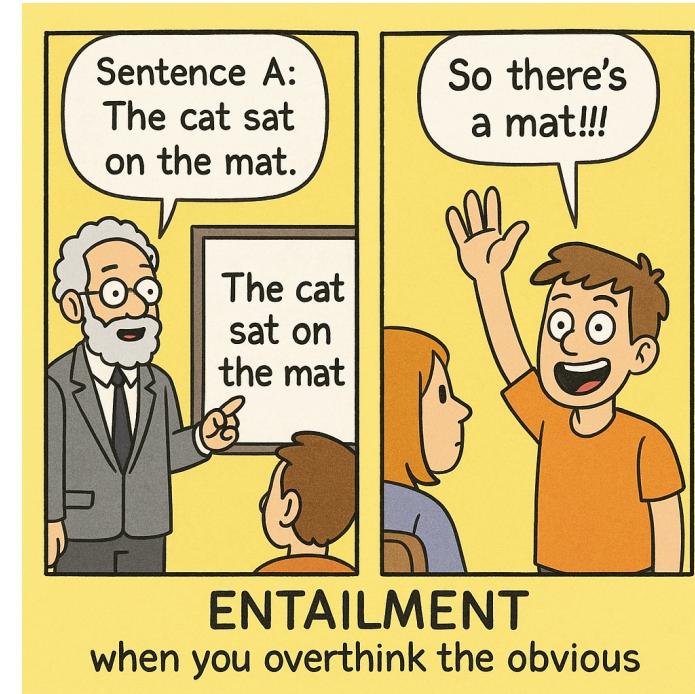
Work in **GROUP**, think of three sentences that are entailed by each of these sentences:

- c.

Controversially, DeLa chose to eliminate herself from the competition after winning the lip-sync battle, which allowed Trixie, Kennedy, and Shangela to all stay in the competition.

- d.

Mario defeated Bowser, but then all he found in the dungeon was Toad, who told him that the princess was in another castle.



Logical Entailment

- **p** entails **q** for logical reasons, **regardless** of world knowledge or lexical meaning

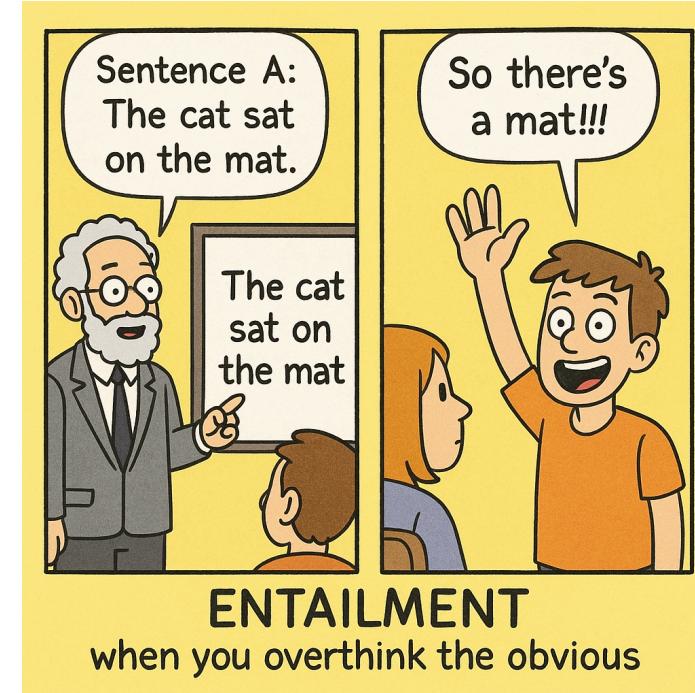
p: The cat sat on the mat.

q: There is a cat/mat.

p: (a dog): I heard the can opener.

q: (Therefore for the dog), FOOD EXISTS!.

- We got the entailment relation between **p** and **q** by logical inferences



World-specific Entailment

- **p** entails **q** due to world knowledge or lexical meaning

p: Charles III is the King of the United Kingdom.

q: Queen Elizabeth II was Charles's mother.

p: Merlin is from Scotland.

q: Merlin is from UK.

- We got the entailment relation between **p** and **q** by making reference to how the world works, or to knowledge of lexical meaning



In this world:
Sun + ice cream \Rightarrow melt
(unless you're a freezer)

Mutual Entailment

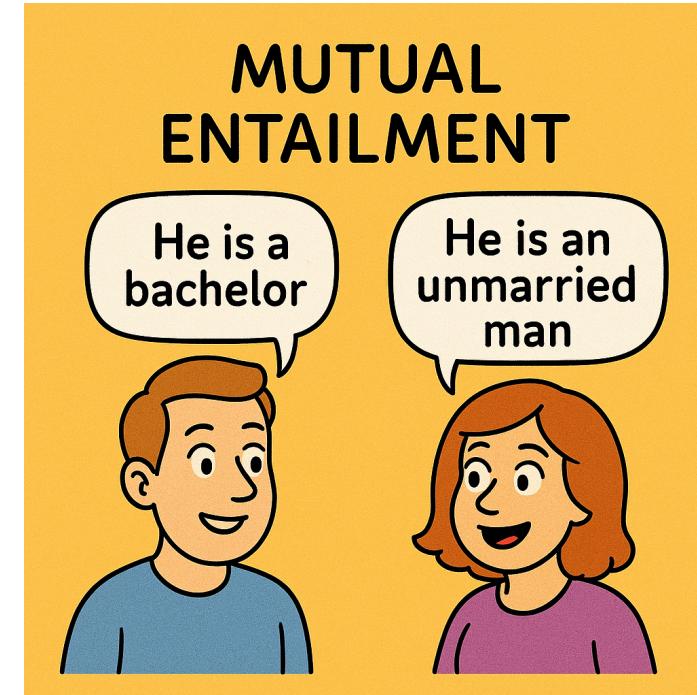
- **p entails q AND q entails p as well.**

p: Merlin is a sorcerer.

q: Merlin is a wizard.

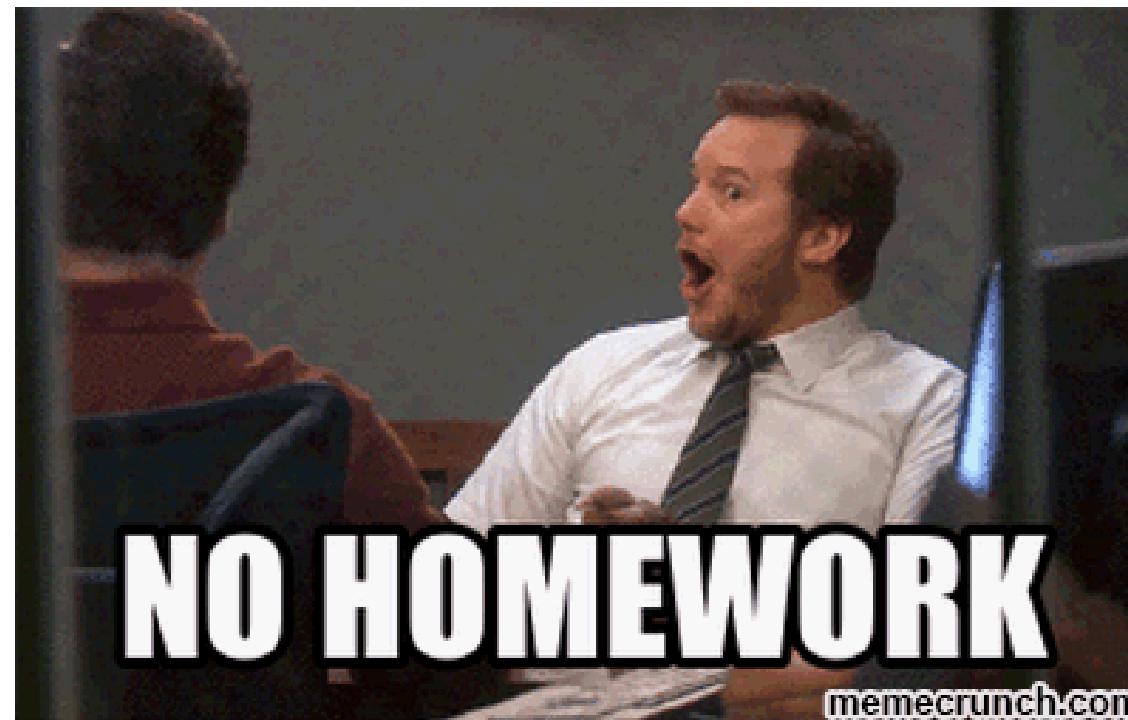
p: Merlin is immortal

q: Merlin is not capable of dying.



no homework is due this week, none until OCT 26!

continue reading for **SEMANTICS** [Fromkin Ch7]



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