

Knowledge of Linguistic Meaning

Some things we know about meaning:

- **Paraphrase** : P is true, if and only if Q is true

(1) P: Bill was killed by Phil.

Q: Phil caused Bill to die.

- **Contradiction** : if P is true, then Q is false

(2) P: Phil is a murderer.

Q: Phil has never killed anyone.

- **Entailment** : if P is true, then Q is true

(3) P: Phil killed Bill.

Q1: Phil killed someone.

Q2: Someone did something in the past.

(cf. **synonymy, antonymy, hyponymy**)

Semantics and Truth

Note that all these meaning relations
depend on the truth (or falsity) of each sentence

- So can we define meaning in terms of truth?

Semantics vs. Pragmatics

Before - “**bottom up**” approach

- Semantics = lexical+compositional meaning
- Pragmatics = leftover, non-compositional stuff

So: Figure out meanings of words (lexical semantics)
Decide how word meanings are combined

Semantics vs. Pragmatics

Different approach - “top down”

- Can you imagine a context of use in which the meaning is different?

(4) Nirit has four portable chairs.

Context 1: Nirit has exactly four portable chairs.

Context 2: Nirit has at least four portable chairs.

- Semantics does the “minimum” meaning
- The rest is pragmatics

Semantics vs. Pragmatics

Making this more precise: truth conditions

To know what a sentence means is to know the circumstances under which it is true (=its truth conditions)

- Semantics (of a sentence)= what must hold true in the world for the sentence to be judged true
- Pragmatics = all speaker or context related meaning

Both approaches are ways to get at **the invariant part of meaning**: *sentence* meaning (not *speaker* meaning)

Frege: on sense and reference

Starting point: what is the meaning of some very simple sentences and their parts:

- “A is B” or “A=B”

Possibilities:

(5) “this object is that object”

(6) “the sign A means the same thing as the sign B”

- (5) is a tautology (assuming the person who says it is truthful) – obviously, any object is equal to itself!
- (6), on the other hand, is an informative statement

What are meanings?

Bach, lecture I: Meanings are not language

- they are outside of language.
- So, when we say “A means the same thing as B”, we relate two pieces of language (two expressions, A and B), to the thing they mean, which is not language

Examples:

- (7) The sun that rose today is the same object as the sun that rose yesterday.
- (8) The comet streaking across the sky is the same one as the comet we saw 20 years ago.

Clearly,

when we say “A is B”,
we don’t mean that **the actual names** are the same,

what we mean is that the object named A is the same as the object named B (modes of presentation)

- **Reference of a sign** =
the object in the world that the sign stands for
- **Sense of a sign** =
the way that the sign establishes its connection to
the object it stands for = mode of presentation

Examples: (9) “morning star” and “evening star”

(10) “point of intersection of a and b” and “point of
intersection of b and c”

Sign vs. Sense

- There are many ways of naming the same mode of presentation (synonyms, different languages)
= many signs for a given sense

Examples:

- (11) “Sophia” “Ms. Sophia Malamud” etc.
- (12) “the instructor of ling130 in 2008”
“the professor who teaches ling130 in 2008”
“the teacher of semantics course in 2008 at Brandeis”
“the teacher of this course” etc.
- (13) “apple” “pomme” “яблоко” “mela” “omena” “apfel” etc.

Sense vs. Reference

- There are many ways of presenting the same object
= many senses for a given reference

Examples:

(14) “I”

“Sophia”

“the teacher of ling130 in 2008”

“the teacher of ling100 in 2008”

“the linguistics professor who joined Brandeis in 2006”

“the person closest to the board of this classroom” etc.

(15) “the morning star”

“the evening star”

“planet Venus” etc.

Why do we need sense?

- Wouldn't reference be enough?
 - First problem: **imaginary objects**

(16) John is looking for a dragon.

(17) John is looking for a unicorn.

(18) John is looking for a white rabbit.

Why do we need sense?

- Wouldn't reference be enough?
 - Second problem: sometimes there may not even be a reference for a given sense!

Examples:

(19) “The celestial body most distant from Earth”

(20) “the perfect woman”

(21) “the 20th student in this class”

(22) “the biggest prime number”

Why do we need sense?

- Wouldn't reference be enough?
 - Third (and most obvious) problem: **different senses for the same reference!**

(23) “The instructor of Ling 130 in 2008” does not mean the same thing as “The instructor of Ling 130 in 2007”

- Back to truth conditions:
you can imagine a scenario where these expressions would refer to different people.

Sense ≠ idea or concept

an idea is a mental representation, potentially different for each person

a sense of an expression is the same for all people.

Example: (24) Frida Kahlo



Frida Kahlo

Painter

Mexican

Married to Diego Rivera

Etc.

Referent: The real person who was named “Frida Kahlo”

Sense: Mapping between “Frida Kahlo” and the person

Mental ‘file card’:

Has information about assumed referent of the name “Frida Kahlo”

Sense vs. reference vs. idea

Because senses are “common property” we can transmit meaning from one person to another by using language.

Example:

(25) Moon, telescope image, retinal image
= reference, sense, idea

• The sense and reference of sentences:

(26) “Odysseus was set ashore at Ithaca while sound asleep”
○ in a poem, we’re concerned with sense (and ideas) –
i.e., with the images and events described and the feelings and ideas they arouse in us.

Truth & sentence meaning

- once we go beyond art, we start caring about whether something is **true or false**,
- and then we want to know not just the **sense**, but the **reference** of proper names (e.g. “Odysseus”) and other words

Example:

If I told you,

(27) “To get an A in this class, you should read the paper PTQ”, you would assume that I am truthful, and crucially want to know what actual paper I referred to as “PTQ”

- So, there are only two objects that can serve as reference for any sentence: the truth values 1=TRUE and 0=FALSE

Truth & sentence meaning

Test cases: reference of complex sentences
(prediction: *true* or *false*).

Relative clauses modifying proper names (non-restrictive):

(28) Frida Kahlo, who had a back injury when she was young, married Diego Rivera

This is only true if both of these are true:

1. Frida Kahlo had a back injury when she was young
2. Frida Kahlo married Diego Rivera

Truth & sentence meaning

Test cases: reference of complex sentences
(prediction: *true* or *false*).

Present-tense conditionals with no indefinites :

(29) “If the Sun has already risen, the sky is very cloudy”

(think of $p \rightarrow q$: if we replace p and q with propositions without changing their truth-values, the result doesn't change since the truth-table remains the same)

It works! The reference of a sentence is its truth-value.

Truth & sentence meaning

Test cases: reference of complex sentences
(prediction: *true* or *false*).

Now, exceptions:

- **Indirect speech**

(30) “John said that the morning star is the evening star”

(31) “John said that the rose is a rose”

- (30) is a different claim than (31) – because in reported speech the words of the subordinate clause **refer** to the **sense** of John’s words.

(32) “Holmes knows that the murderer is Bill”

(33) “Holmes knows that the murderer is the left-handed man with a red face who arrived in a cab”

- (32) may be false while (33) is true

Truth & sentence meaning

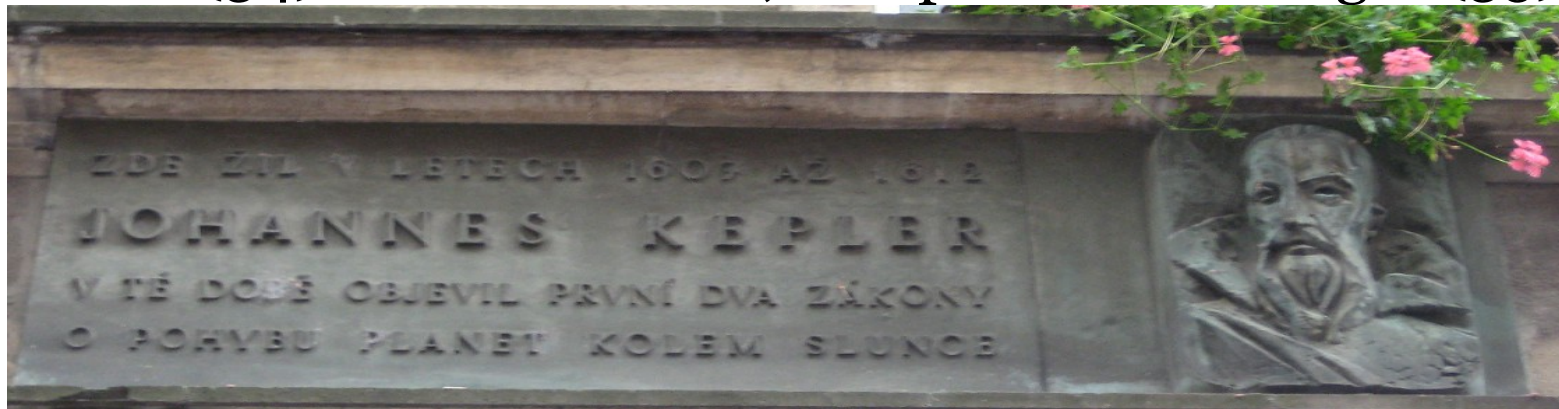
Exceptions cont'd:

- Definite descriptions and other “proper names”

(34) “Whoever discovered the elliptic form of the planetary orbits died in misery”

(35) “Someone discovered the elliptic form of the planetary orbits”

- (34) seems to assert, as a part of its thought (35)



Exceptions cont'd:

- Definite descriptions and other “proper names”

- Similarly (36) seems to assert the existence of a unique male monarch of France.

(36) “The king of France visited yesterday”

In fact, this is not **asserted** but **presupposed**, just as

(37) “Kepler died in misery”

presupposes (rather than asserts)

(38) “There was a person named Kepler”.

Exceptions cont'd:

- Sentences with certain kinds of verbs
 - presuppositions again!

(40) “Bebel fancies that the return of Alsace-Lorraine would appease France’s desire for revenge.”

1. Bebel believes that p
2. It is not the case that p

(41) “John knows that we’re meeting in this room”

1. John believes that p
2. It is the case that p

(42) “Galileo discovered that the Earth is rotating”

1. Galileo didn’t believe that p
2. Galileo came to believe that p
3. It is the case that p

Exceptions cont'd:

- Conditionals with indefinite expression in the antecedent

(43) If a number is less than 1 and greater than 0, its square is less than one and greater than 0.

- “...The component in question is ‘a number’ in the conditional clause and ‘its’ in the dependent clause.”

1. It is by means of this very indefiniteness that the sense acquires the generality expected of a law
2. It is this which is responsible for the fact that the antecedent clause alone has no complete thought as its sense and in combination with the consequent clause expresses one and only one thought, whose parts are no longer thoughts

Exceptions cont'd:

- Counterfactuals

(44) If iron were less dense than water, it would float on water

- 1.If anything is less dense than water, it floats on water
- 2.Iron is not less dense than water
- 3.Iron does not float on water

We'll return to counterfactuals again this week!

Exceptions cont'd:

- Contributions of some discourse connectives

- (45) a. “Although she’s from Brooklyn, she’s nice”
b. “She is from Brooklyn, but she is nice”
c. “She is from Brooklyn; yet, she is nice”

Frege’s claim: these are literally synonymous with (46)

(46) “She is from Brooklyn and she is nice.”

The difference is “rhetorical effect” with no bearing on truth conditions.

Frege’s claim on “because”:

- (47) “Because ice is less dense than water, it floats on water”
1. Ice is less dense than water
 2. If any is less dense than water, it floats on water
 3. Ice floats on water

Truth & complex sentences

Recap:

when we analyse complex sentences into clauses,
their truth-value may fail to be
a simple combination of the truth-values of the clauses.

Two possible reasons are:

1. sentence-parts may fail to refer to a truth-value
2. the result is a complex combination of the truth-values of the parts

Sense and Reference

To come back full circle:

“ $A=B$ ” and “ $A=A$ ” are very different statements:

Their reference is the same

(true),

because the reference of their parts is the same.

Their sense is different (one is a contingency, the other a tautology),

because the senses of their parts are different.