

CAS LX 502

Semantics

1b. Reference

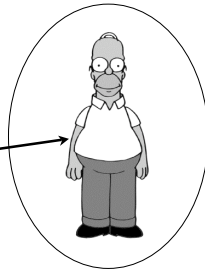
2.1-2.3

Denotation and reference

- We use language to talk about the world.
- We can use words to refer to things.
 - Pat went to Somerville.
- We say that *Pat* denotes the person Pat, *Somerville* denotes the city Somerville. A connection between words and the world.
- Clearly if we want to investigate the nature of meaning, this must play an important role.

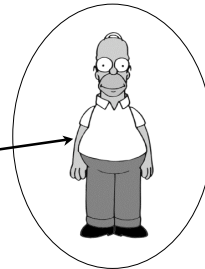
A starting point

- Homer is standing.
 - (An accurate description of the situation.)
- We use the name *Homer* to refer to that guy.
- We're saying that that guy has the property of *standing* (being upright on his feet).



A starting point

- Homer is an *individual* in the (mental model of the) world.
- We can define the name *Homer* as denoting that individual there.
- Proper names and noun phrases are the things that denote individuals, to which we can attribute properties.



Models

- We can “model” the world as a collection of individuals, each with various properties.
- We can refer to individuals with proper names—and with other noun phrases too: *Homer*, *The man with 8 fingers*, *That guy on the right*, *him*.



Denotation and reference

- Like nouns denote individuals in the (mental model of the) world, sentences could be said to denote situations.
- The situation might be an actual situation in the real world (in which case the sentence is true), or not (in which case the sentence is not true).

Names

- The essential function of a name is to allow reference to an individual. Apart from its denotation, a name has no other real meaning.
- For the use of a name to be successful, both the speaker and hearer need to know which individual the name refers to—but almost nothing else about the individual.

Noun phrases

- Nouns and noun phrases also can be used to refer to individuals.
- Noun phrases come in a couple of flavors: Indefinite NPs (like *a dog*) and definite NPs (like *the dog*).
- With definite NPs, we can refer to an individual using a definite description, like *the tallest man in the world*. Though we couldn't name the individual, we can nevertheless refer to him by way of his properties.

Indefinite NPs

- An indefinite NP has a range of possible meanings. It can be specific, denoting an individual, or it can be nonspecific, effectively denoting any of a class of individuals.
 - An iguana is an easy pet to care for.
 - A shifty character snuck into the room.
 - Darva wants to marry a millionaire.

Definite descriptions

- Definite descriptions have several complex properties. For one thing, the individuals they denote may vary with the context of utterance:
 - *The President of the United States*
 - *The man in the corner*
- And two different definite descriptions can sometimes refer to the same individual.
 - *My neighbor drives an SUV*
 - *The coach of the hockey team drives an SUV*

Venus = Venus

- In fact, I can know that *my neighbor drives an SUV* without knowing that *the coach of the hockey team drives an SUV*, even if they are the same person.
- In that case, the knowledge I lack is that *my neighbor is the coach of the hockey team*.

Venus = Venus

- *My neighbor is the coach of the hockey team*.
- This kind of example brings up an interesting conundrum.
- *My neighbor* denotes the individual that is my neighbor. Let's call him Mike.
- *The coach of the hockey team* denotes the individual that is the coach of the hockey team. That happens also to be Mike.
- So, is the meaning of this sentence 'Mike is self-identical'? Clearly not.



Frege and the stars



- Gottlieb Frege, a central figure in the formalization of semantics, observed this in relation to *the morning star* and *the evening star*, definite descriptions that both—as it turns out—refer to the planet Venus. But it is not self-evident that both are in fact the same—it’s a discovery. We’ve *learned* something when we discover that the morning star is the evening star.

Sense and reference

- The bottom line is that meaning and reference (denotation) can’t be exactly the same thing—there’s more to meaning than reference.
 - If *the morning star* and *the evening star* mean the same thing, then we should be able to substitute one in for the other and then *The morning star is the evening star* should mean the same thing as *The morning star is the morning star*.

Sense and reference

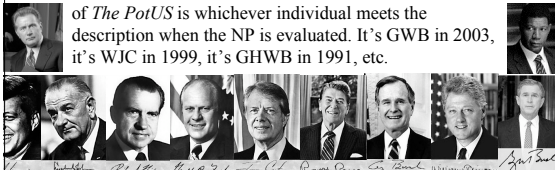
- Frege divided meaning into *sense (intension)* and *reference (extension)*.
 - The *reference* of an expression is what it stands for on a given occasion of use.
 - The *sense* of an expression is the way in which the reference is presented.
- So, the sense of *the PotUS* is the same, regardless of the reference, but the reference will change depending on the year we’re talking about.

Extension and intension

- The technical term used to describe the denotation of an expression is *extension*.
 - The extension of *The PotUS* (as uttered now) is the same as the extension of *George W. Bush* (as uttered whenever).
 - The extension of *The kids in the hall* is the collection of underage people now in the hall.

Extension and intension

- The intension is the “sense” of an expression. The intension of *The PotUS* and *the kids in the hall* remains constant across utterance contexts.
- We’ll formalize this later, but the idea is that the intension of *The PotUS* is whichever individual meets the description when the NP is evaluated. It’s GWB in 2003, it’s WJC in 1999, it’s GHWB in 1991, etc.



Deixis

- Certain words, pronouns and demonstratives, denote an individual, but which individual it is depends entirely on the context. These can be said to have variable reference (not constant across utterances). They are *deictic*—they “point.”
 - *I was asleep.*
 - *That is a yellow pencil.*

Pronouns

- A pronoun can be used once a referent has already been established, to “point back” to that referent.
 - A man walked in. He sat down.
- Without a referent, pronouns are infelicitous.
 - She wanted to buy it.
- Because of this, pronouns can serve as a diagnostic for referentiality.
 - #I wish I owned a house. It is red.
 - #I can’t find a waiter. He hasn’t taken my order.

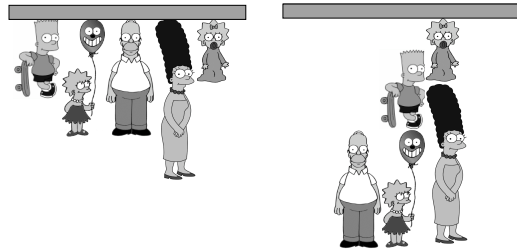
Groups and collections

- Noun phrases can also refer to several individuals.
 - The students started a riot.
 - They built a house.
 - The committee voted against the proposal.
- But collections of individuals can be “viewed” in different ways.
 - The students lifted the piano.
 - The students gathered.
 - The students have long hair.
 - #The committee has long hair.

Distributive vs. collective

- If the predicate applies to each member of the group individually (*the students hit each other, the students weigh less than 200 pounds*), the interpretation is said to be *distributive*.
- If the predicate applies to the group as a group (as if it were a single, compound individual) (*the students gathered, the students weigh over 2 tons*), the interpretation is said to be *collective*.

The Simpsons touch the ceiling



Non-referring expressions

- Not all words/phrases can be used to refer to individuals: *and, although, because*.
- Even nouns/noun phrases don’t always denote individuals. For example, they can refer to abstract concepts: *I cherish liberty*.
- And what does *nobody* denote? *Nobody left*.
 - In this case, we’re still talking about individuals, though. Pick any individual, call him/her ‘X’, the property *left* does not hold of ‘X’.

Quantifiers

- *Nobody, everybody, three students, most of the senators* are all quantifiers.
- They don’t denote individuals, but rather operate by running through a collection of individuals with respect to the predicate in the sentence.
 - *Most of the senators voted* is true if, when you go through the list of senators, check for each one whether that senator voted, and tally up the results, more than half the total number had voted.

Generalizing reference

- And we certainly want to be able to characterize the meaning of *is standing* in *Homer is standing*—simply knowing which individual is being discussed is not enough.
- We can extend the idea that names denote individuals to a larger system of denotation that would look something like...

A (start on a) denotational theory of meaning

- Names denote individuals.
- Common nouns denote collections of individuals
- Verbs denote actions/states/events
- Adjectives denote properties of individuals
- Adverbs denote properties of actions/states/events

A preview



- *Selma smokes*
- *Smokes* is a property that individuals can have. It's a true description of some individuals and not of others.
- We can think of the denotation of *smokes* as a collection of the individuals who are smokers.
- Then, *Selma smokes* is true if the individual denoted by *Selma* is in the collection of individuals designated by *smokes*.

