What is semantics, what is meaning

Lecture 1

Hana Filip
What is semantics?

• Semantics is the study of the relation between form and meaning
  – Basic observation: language relates physical phenomena (acoustic blast we produce when we speak, chalk marks on the board, etc.) to meanings
  – How do we get from certain brute physical facts to meanings?
  – How do we get from physics to semantics?

• The crucial question of linguistics:
  How are form and meaning systematically related in an adequate grammar of natural language?
The form-meaning link in linguistics

phonetics phonology morphology syntax semantics pragmatics

SOUNDS MEANING
The form-meaning link in linguistics

phonetics phonology morphology syntax semantics pragmatics
|________________________________________________________|
SOUNDS MEANING

Phonetics studies the physical side of linguistic utterances—the articulation and perception of speech sounds (articulatory, acoustic and auditory).
The form-meaning link in linguistics

phonetics  phonology  morphology  syntax  semantics  pragmatics

SOUNDS  MEANING

Phonology is the study of the sound patterns of human language.

– Speech sounds as physical entities may be infinitely varied, but when they function as elements in a given language, as phonological units, they are highly constrained.

– Native speakers of any language intuitively know which sequences of speech sounds are words or could be words in their language.

   English  English-like  Not English-like  Czech tongue twister
   blue  grue  prst  strc prst skrz krk

– What are the smallest meaning distinguishing units (= phonemes) in a given language? Example:  cat - sat - bat - mat

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The form-meaning link
in linguistics

phonetics  phonology  morphology  syntax  semantics  pragmatics

SOUNDS MEANING

Morphology is the study of the structure of words and the smallest meaning-bearing units and how they combine into words:

- allowable combinations of morphemes: un-able, to un-do, *un-house
- new word formation: to pulver-ize, to woman-ize, to google

“You don't get to be a verb unless you're doing something right” (Nunberg on the effect of Google on our collective consciousness, 2003, in “The Nation: Search Engine Society; As Google Goes, So Goes the Nation”)
The form-meaning link in linguistics

phonetics phonology morphology syntax semantics pragmatics

SOUNDS MEANING

Syntax is the study of the formation of sentences, how words are combined to larger units than words, to phrases and sentences that are well-formed strings in a given language

*portrait Rembrandt painted that a …
A portrait that Rembrandt painted …
The form-meaning link in linguistics

phonetics  phonology  morphology  syntax  semantics  pragmatics
|----------------------------------------------------------------|
SOUNDS  MEANING

Semantics is the study of meaning expressed by elements of any language, characterizable as a symbolic system.

It is the goal of linguistic semantics to describe the meaning of linguistic elements and to study the principles which allow (and exclude) the assignment of meaning to combinations of these elements. A complete and an adequate semantic theory

– characterizes the systematic meaning relations between words and sentences of a language, and

– provides an account of the relations between linguistic expressions and the things that they can be used to talk about  (De Swart 1998, p.2).
The form-meaning link in linguistics

phonetics  phonology  morphology  syntax  semantics  pragmatics

SOUNDS  MEANING

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The form-meaning link in linguistics

• **Question:** How is a meaningful sentence built up from its meaningful parts all the way down to individual words?

*Dog bites man* ordinary, expected event, barely something worthwhile reporting

*Man bites dog* an unusual, infrequent event, which is more likely to be reported

  – Same words *man, dog, bites* with the same meaning
  – different structure leads to a different meaning of a whole sentence
  – structure overtly manifested in the differences in word order indicates how *man* and *dog* are related to the verb *bites*

• **Conclusion:** The meaning of a complex expression is determined by its structure and the meanings of its constituents—once we fix what the parts mean and how they are put together we have no more leeway regarding the meaning of the whole. This is the PRINCIPLE OF COMPOSITIONALITY (Frege’s Principle), a fundamental presupposition of most contemporary work in semantics.

**We cannot study meaning without structure.**
The form-meaning link in linguistics

We cannot study meaning without structure.

There are certain aspects of structure (syntax, morphology) that may be fruitfully studied without reference to meaning (semantics). However, if we are interested in language as a means of communication, we do not want to study syntax for its own sake (De Swart 1998, p.9-10).
The form-meaning link in linguistics

phonetics  phonology  morphology  syntax  semantics  pragmatics
|===================================================================|
SOUNDS       MEANING

• The simplest cases of meaning are those in which the speaker says a sentence and means exactly and literally what he says.

  *It’s warm in here.*

• More complicated cases: the speaker utters a sentence, means what he says, but also means something more. The literal meaning of a sentence and what the speaker intends to convey when he uses it, utters it, for example, then come apart in various ways

  *It’s warm in here.*

   (i) Sentence (literal) meaning: assertion about temperature

   (ii) Speaker’s intended meaning or utterance meaning (one among many): command

   *Open the window, please!*
The form-meaning link in linguistics

- Even more complicated case: An American soldier example (Searle 1965 “What is a speech act?”)

“Suppose that I am an American soldier in the Second World War and that I am captured by Italian troops. And suppose also that I wish to get these troops to believe that I am a German officer in order to get them to release me. (…) But let us suppose I don’t know enough German or Italian to do that. (…) they don’t know enough German (…) Let us suppose I know only one line of German, which I remember from a poem I had to memorize in a high school German course. Therefore I, a captured American, address my Italian captors with the following sentence: *Kennst du das Land, wo die Zitronen blühen?*

This is a line from Johann Wolfgang von Goethe’s novel *Wilhelm Meisters Lehrjahre*, which is translated as *Knowest thou the land where the lemon trees bloom?*

“I want my captors to be deceived into thinking that what I mean is ‘I am a German officer’, but part of what is involved in the deception is getting them to think that that is what the words which I utter mean in German.”
The form-meaning link in linguistics

*Kennst du das Land, wo die Zitronen blühen?*

(i) Sentence meaning: Knowest thou the land where the lemon trees bloom?
(ii) Speaker’s intended meaning/utterance meaning: I am a German officer.

However, this example does not mean that we can use ANY string of words with ANY intended meaning. Wittgenstein (in *Philosophical Investigations*) mentions that we cannot say *it’s cold here* and mean *it’s warm here.*

“The reason we are unable to do this is that what we can mean is a function of what we are saying. Meaning is more than a matter of intention, it is also a matter of convention.” (Searle 1965)

• The crucial question of pragmatics:
  How is the sentence meaning related to speaker’s intended meaning?

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The form-meaning link in linguistics

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SOUNDS MEANING

Semantics studies literal, context-independent meaning, the constant meaning that is associated with a linguistic expression in all of its occurrences.

Pragmatics is the study of situated uses of language, the study of language in relation to the users of language, the study of linguistic communication as a social activity.
The form-meaning link in linguistics

• Pragmatics is also concerned with how we DO things with words
  – There are certain utterances that change facts in the world
    \( I \) hereby declare you husband and wife.

    vs. \#I hereby scramble and fry you.
    (This is not how you get your eggs cooked)

Austin. J. 1962. *How to Do Things with Words?*
• What is semantics?
• What is meaning?
What is meaning?

• ‘Aboutness’ of natural language
  – A noise that I make when I speak or a scribble that I produce when I write words in English or a sign-language gesture I make are physical objects that convey meanings, they are about something
  – We use language to communicate, to talk about things in the world, people and their properties, relations between people, events, in short about the way the world is, should be, could have been …
  – The property of ‘aboutness’ of linguistic signs (or symbols) is one of the defining properties of natural languages, it is what a semantic theory of natural languages tries to capture
Where is meaning?

• Can we define meanings in terms of their physical properties?
• The answer is ‘no’, there are 3 main arguments for this answer:
  1. Generally, there are no physical features that all meaningful noises or sets of marks have in common which serve to differentiate them from other signals or noises.
  2. Usually there is no resemblance between a name and the thing it is the name of. Linguistic forms usually lack any physical resemblance with the entities that they stand for.
  3. Not only do languages vary in their vocabularies, but also within one language the relation between the words and what they stand for may change (ex. gay).

In sum, the connection between a word and what it stands for is ARBITRARY. “The ARBITRARINESS of the linguistic sign” (Ferdinand de Saussure, 1916, *Cours de linguistique générale*) is one of the defining properties of human language.
Where is meaning?

- Indirect relation between word and world

\[
\text{WORD} \leftrightarrow \text{CONCEPT} \leftrightarrow \text{THING IN THE WORLD}
\]

- house

- THOUGHT

- IDEA

- SENSE

- possibly IMAGE

- possibly IMAGE

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Where is meaning?

- Indirect relation between word and world

WORD ←→ CONCEPT ←→ THING IN THE WORLD

house

THOUGHT

IDEA

SENSE

possibly IMAGE

? IS IT IN YOUR MIND?
Where is meaning?

Gold is getting more and more expensive.

What idea, concept, thought or image do you think of when you hear this sentence?

For EVERY PERSON, the word gold evokes a DIFFERENT PICTURE, IDEA, CONCEPT, etc.; yet that does not prevent us all from using the word with the same meaning.

This means that the word gold applies to something general, or possibly even universal.
Where is meaning?

- Indirect relation between word and world

- **WORD** ←→ **CONCEPT** ←→ **THING IN THE WORLD**
  
  *house* → **THOUGHT** → **IDEA** → **SENSE**
  possibly **IMAGE**

Is the concept something outside your mind that you somehow latch onto?
Where is meaning?
Where is meaning?

• SUMMARY
  – The meaning of words cannot be derived from their physical properties,
  – it cannot be reduced to the real-world objects or their perception, and
  – it cannot be reduced to the particular image in my or your mind.

• The meaning of words is to be derived from the relations between words, concepts and things in the real world.
Language as a social phenomenon

• Each person does not make language up from scratch for herself or himself. When as children we learn a language, we get plugged into an already existing system
Language as a social phenomenon

• Intentions in communication

– Example: Mayan hieroglyphs
– Words, and linguistic signs in general, have a **representational** or **symbolic** function, i.e., they are **ABOUT** something that goes beyond their physical shape, they have meanings.
– Meaning that is conveyed by some marks, scribbles or noises relies in part in the intention on the part of the **speaker** or **writer** to produce understanding in the **hearer** or **reader**.
– Any communication is only successful to the extent that the idea the hearer or reader gets is the same idea that the speaker or writer **intended** the hearer or reader to get.
Language as a social phenomenon

• CONVENTION
  – Meaning is more than a matter of intentions of individual’s speakers, it is also a matter of convention that is accepted, acknowledged, or otherwise believed by the language users.

  – What a linguistic sign represents (is about, means) is determined by some publicly accepted convention.
Language as a social phenomenon

• CONVENTION

Two examples:

– Recall: Wittgenstein (in Philosophical Investigations) observed that we cannot say it’s cold here and mean it’s warm here.
– What must be the case in order for the word CHAIR to designate this particular piece of furniture in the world?

• The constitutive rule for linguistic symbols (John Searle, 1995, The Construction of Social Reality):

One symbol X stands for Y (meaning) in context C, and it does so by some convention that is publicly acknowledged.

I.e., the representational or symbolic (ABOUTNESS) function of a language sign X is constituted by the symbolic ‘stand for’ relation, this relation is essential given that the connection between a linguistic sign and what it stands for is arbitrary.
Language as a social phenomenon

• CONVENTION
  – Apart from language, other facts that in some sense are facts by human agreement (e.g., facts about money, governments, property, marriage, universities) can be motivated in essentially the same way:
    What stands to the sound [CHAIR] as its meaning is what stands to a piece of paper as its function as a dollar bill.

Constitutive rule for institutional facts: X stands for Y (status function) in context C, and it does so by some public convention.
  • This piece of paper stands for a one-dollar bill.
  • The person who kills another (X term), under certain circumstances (C term), and is found guilty of so doing is assigned the status of ‘convicted murderer’ (Y term, and hence an institutional fact).

  – According to Searle (1995, The Construction of Social Reality), language plays a crucial role in the construction of such social facts, facts that have an objective existence only because we believe them to exist.
Language as a social phenomenon

• SUMMARY
  – Linguistic signs have a representational or symbolic function that relies in a crucial way on the intentions of language users to use them to communicate a certain meaning.
  – Meaning is more than a matter of intentions on the part of individual language users, it is also a matter of convention, which is related to the fact that the connection between a linguistic sign and what it stands for is arbitrary.
  – The property of ABOUTNESS (representational or symbolic function) of linguistic signs (= symbols) is truly unique to linguistic signs that is missing from other signs.
Semiotics

• provides a unifying analysis of various sign systems

3 kinds of SIGNS:

• INDEX : smoke means fire, a rabbit’s tracks in the snow mean that the rabbit has recently passed by (NOT arbitrary, NOT conventional)

• ICONS : bathroom signs, road signs (NOT arbitrary, partly conventional)

• SYMBOL: natural language, formal languages like algebraic languages, programming languages, first order language, etc. (arbitrary and conventional)
Theories of meaning

• Mentalistic, cognitive, conceptual
• Referential
Mentalistic, cognitive theories of meaning

• Focus on cognitive representations of meanings

WORD $\rightarrow$ CONCEPT $\rightarrow$ THING IN THE WORLD

*house*

– speakers psychological grasp of the meanings of expressions of their language
– what matters is how the world is presented, construed by means of linguistic expressions, how our reports about reality are influenced by the conceptual structures inherent in our language
– Origins in certain developments in the field of cognitive science in the 1970s: mainly psychology, artificial intelligence, computer science and anthropology.
Mentalistic, cognitive theories of meaning

Just a few examples of some foundational work:

- **Charles Fillmore**, University of California at Berkeley, International Computer Science Institute, Berkeley

- **Ray Jackendoff**, Tufts University

- **George Lakoff**, University of California at Berkeley

- **Ronald Langacker**, University of California at San Diego

- **Leonard Talmy**, State University of New York, Buffalo

- **Anna Wierzbicka**, Australian National University
  1980. *Lingua Mentalis: The semantics of natural language* ()
Mentalistic, cognitive theories of meaning

- Much of the work in mentalistic, cognitive or conceptual linguistics is concerned with categorization, as reflected in linguistic categories:
  “If linguistics can be said to be any one thing it is the study of categories: that is, the study of how language translates meaning into sound through the categorization of reality into discrete units and set of units” (Labov 1973, p.342).

- Hence, both in its methodology and substance, they are directly related to work done in psychology.
Mentalistic, cognitive theories of meaning

- Problem of categorization: many words describe concepts that have no clear category boundaries and that not all members of a given category have an equal status.

Example: chair
We might characterize its meaning in terms of a conjunction (of a fixed set) of the following conditions:

A given object counts as a CHAIR if and only if it is (a) a piece of furniture (b) for one person (c) to sit on, (d) having a back and (e) four legs.

These five conditions could then be taken as being individually necessary for the definition of the category the word CHAIR labels. If any of the defining features is not exhibited by the entity, then the entity is not a member of the category. Jointly, the two features are sufficient; any entity which exhibits each of the defining features is a member of the category.
Mentalistic, cognitive theories of meaning

A given object counts as a CHAIR if and only if it is (a) a piece of furniture (b) for one person (c) to sit on, (d) having a back and (e) four legs.

• Such necessary and sufficient conditions work well for certain things that we call *kitchen chairs*.

• But what about

  *office chairs*
  *dentist chairs*
  *beanbag chairs*
  *barber chairs*
  *electric chairs*?
Mentalistic, cognitive theories of meaning

• Observation: among things that we call ‘chairs’, there are
  – better examples of the category ‘chair’ like kitchen chairs and some are
  – less good examples like dentist chairs and some are
  – very marginal examples like beanbag chairs and electric chairs.

• Proposal:
  Words like CHAIR are not defined in terms of necessary and sufficient conditions, but
  instead categorized around good, clear exemplars like KITCHEN CHAIRS, and that
  these good exemplars or PROTOTYPES serve as reference points for the categorization
  of not so clear instances.
  – Members of the category like CHAIR can be graded in terms of their typicality.
  – Membership in a prototype category is a matter of gradience.

The notion of ‘prototype’ in this sense is defined in
Mentalistic, cognitive theories of meaning

• Example: *bird*

  *bird*: ‘warm-blooded, egg-laying, feathered vertebrae with forelimbs modified to form wings’ (dictionary definition)

  *bird*: [+feathers], [+beak], [+ability to fly] (features with boolean binary value)

• Even concepts whose boundaries can be scientifically defined exhibit a graded membership

• Robins and magpies, for example, are intuitively better examples of birds than are hummingbirds, ostriches, or penguins.
Mentalistic, cognitive theories of meaning

Questions at the intersection of linguistics, psychology and anthropology:

(1) What categories of experience are encoded by the members of a given speech community through the linguistic choices that they make when they talk?
(2) Do categories have any basis in the real world, or are they merely constructs of the human mind?
(3) What is their internal structure?
(4) How are categories learnt?
(5) How do people go about assigning entities to a category? (For example, a furry four-legged animal to the category DOG?)
(6) What kinds of relationships exist amongst categories? (For example, between DOG, MAMMAL, ANIMAL?)
(7) Language, culture and thought are all mirrors of each other. Does language play a role in shaping how we think and if it does, to what extent exactly?
(8) Do all human beings share the same conceptual system? Do all languages express concepts in the same way? Do we overestimate the differences among languages and cultures: Will we find, upon deeper inspection, fundamental similarities in thought processes in individuals with diverse linguistic and cultural backgrounds?
Mentalistic, cognitive theories of meaning

Example of how one question is addressed
• How do parts of language, culture and thought match up?

Charles Fillmore: FRAME SEMANTICS
“Linguistically encoded categories (not just words and fixed phrases, but also various kinds of grammatical features and syntactic patterns) presuppose particular structured understandings of cultural institutions, beliefs about the world, shared experiences, standard or familiar ways of doing things and ways of seeing things. Lexical items can be seen as serving discriminating, situating, classifying, or naming functions, or perhaps merely a category-acknowledging function, within, or against the background of, such structures” (Fillmore 1985, p.231-2).

• Such structures are labeled FRAMES
• inspired by work in AI, computer science, psychology, and philosophy in the late 1960’s and 1970’s
• roughly correspond to the notion of ‘prototype’ or ‘exemplar’, used by Rosch, and others

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Mentalistic, cognitive theories of meaning

Implementation of the FRAME idea: Commercial Transaction Frame

Some of the ways in which this situation can be described:

- Minnie _sold_ the car to Max for a hundred dollars.
- Max _bought_ the car from Minnie for a hundred dollars.
- Max _paid_ a hundred dollars to Minnie for the car.
- Max _paid_ Minnie a hundred dollars for the car.
Mentalistic, cognitive theories of meaning

Verbs associated with the commercial transaction FRAME:

<table>
<thead>
<tr>
<th>Frame</th>
<th>Participant Role</th>
<th>Grammatical Function</th>
<th>Subject</th>
<th>Direct Object</th>
<th>Prepositional Phrase</th>
<th>Agent</th>
<th>Means</th>
</tr>
</thead>
<tbody>
<tr>
<td>SELL</td>
<td>seller</td>
<td>subject</td>
<td>Minnie</td>
<td>car</td>
<td>$100</td>
<td>Max</td>
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<td></td>
<td>goods</td>
<td>DO</td>
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</table>
Mentalistic, cognitive theories of meaning

A **frame** is a script-like (conceptual) structure of inferences, linked by linguistic convention to the meanings of linguistic units, including individual lexical items.

Each frame identifies a set of frame elements (FEs), i.e., participants and props in the frame.

A frame semantic description of a lexical item identifies the frames which underlie a given meaning and specifies the ways in which FEs, and constellations of FEs, are realized in structures headed by the word.

http://framenet.icsi.berkeley.edu/
Mentalistic, cognitive theories of meaning

- **Fuzzy concept, fuzzy set, fuzzy logic**

Lotfi Zadeh, University of California at Berkeley
1965. “Fuzzy sets.”
- Fuzzy sets are an extension of the classical notion of a ‘set’ in set theory.
- The classical notion of a ‘set’ takes the membership of elements in a set to be evaluated in binary terms according to a bivalent condition — an element either belongs or does not belong to the set.
- Fuzzy set theory permits that elements in a set have degrees of membership.

Examples:
*pregnant, married* vs. *tall, old, playboy, strong, grey-haired, genius, clean*
Mentalistic, cognitive theories of meaning

• Some outstanding issues
  – What is the mental concept, image, frame, etc. associated with words like *only*, *hello*, or with negation (*not*), quantification (*every*)?
  
  – What is the mental concept, image, frame, etc. associated with complex concepts, i.e., linguistic expressions beyond the word level? We need define operations on concepts that are as psychological realistic as the atomic concepts (see de Swart 1998, p.5-6).
Referential theories of meaning

• Basic tenet:

MEANING IS REFERENCE TO FACTS OR OBJECTS IN THE WORLD

WORD(S) \rightarrow WORLD

definite description: \textit{the house} \rightarrow
definite description

proper name: \textit{David Lewis} \rightarrow
definite description

“World” is intended to encompass the vast complex of things, situations and facts that words or sentences can be “about”.

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Referential theories of meaning

• Basic tenet: MEANING IS REFERENCE TO FACTS OR OBJECTS IN THE WORLD
  WORD(S)                      WORLD

  proper name: David Lewis

• A proper name David Lewis refers to or denotes its bearer: a person named David Lewis.
• The terms reference, denotation, denotatum, semantic value is used for what a name denotes.
• The denotation relation constitutes the most fundamental semantic relation.
Referential theories of meaning

• Basic tenet:
  MEANING IS REFERENCE TO FACTS OR OBJECTS IN THE WORLD

• Referential theories of meaning are concerned with the relation between linguistic expressions and the world (i.e., what speakers use expressions to talk about in the world).

• They are motivated by the basic intuition that
  – one of the most important characteristics of natural language expressions is that they are about something in the world, they are about something that is external to the concepts in our minds.

• They formulate a theory of meaning that makes no psychological claims about the speaker’s state of the brain or his/her psychological grasp of the meanings of expressions of his language, a theory of mental objects of some sort, concepts or thoughts in speaker’s heads, etc.
Referential theories of meaning

• origins are in the philosophy of language, logic and mathematics:

  Gottlob Frege (1892)
  Bertrand Russell (1905)
  Alfred Tarski (1933, 1944)
  Peter Strawson (1950)
  Richard Montague (1970)
• John Searle on philosophy of language

Part 1:
http://www.youtube.com/watch?v=jOlJZabio3g

Part 2:
http://www.youtube.com/watch?v=FC3vosOIRZ4&feature=related
Referential theories of meaning

• Basic tenet:
  MEANING IS REFERENCE TO FACTS OR OBJECTS IN THE WORLD

• Basic questions:
  – How do words refer?
  – What is the mechanism by which the relation of reference between words and things, individuals, facts in the world comes about?

http://plato.stanford.edu/entries/reference/
Referential theories of meaning

• Basic tenet:
  MEANING IS REFERENCE TO FACTS OR OBJECTS IN THE WORLD
  WORD(S)

  common noun: *house* →

  a set of houses
Referential theories of meaning

• THE REFERENCE OF A SENTENCE IS ITS TRUTH VALUE
  (Gottlob Frege, 1892)
  *The door is closed.*

To know the meaning of a (declarative) sentence is to know what the world would have to be like for the sentence to be true. To give the meaning of a sentence is to specify its truth conditions, i.e., to give necessary and sufficient conditions for the truth of that sentence.

• truth-conditional theory of semantics
• correspondence theory
Referential theories of meaning

• THE REFERENCE OF A SENTENCE IS ITS TRUTH VALUE

Mary stood close to John.
• Although we may not know what the facts actually are, we do know what the facts ought to be in order to make these sentences true.

Water is chemically a compound of hydrogen and oxygen.
• We can understand the above sentence without having to go to a lab and do the relevant chemical tests. The point is not to provide effective criteria for checking the truth of sentences. It is not part of semantics to determine when particular sentences are actually true or false about the actual real world. It is not part of semantics to determine whether Einstein’s theory of relativity of Newton’s theory of mechanics is a correct theory about the world. How do we know whether something is true? In philosophy, it is called the theory of knowledge or epistemology.
Referential theories of meaning

• Basic tenet:
  MEANING IS REFERENCE TO FACTS OR OBJECTS IN THE WORLD

*John exercised* [e.g., daily, 3 times a day].
Intuitively, this sentence is true in a situation in which John is one of the people who exercised (at a given time).

**WORD(S)**

intransitive verb: *exercise* ———

**WORLD**

a set of those who exercise
Referential theories of meaning

- Basic tenet:
  MEANING IS REFERENCE TO FACTS OR OBJECTS IN THE WORLD

*John kissed Mary.*

**WORD(S)**

transitive verb: *kiss* →

**WORLD**

a set of ordered pairs of those who kiss

*John kissed Mary* is true if and only if the pair John and Mary is a member of a set of ordered pairs of individuals such that the first member (John) kisses the second (Mary)
Referential theories of meaning

• A note on the notion of a ‘possible world’

world-creating expressions, e.g. verbs like dream, epistemic or propositional attitude verbs like believe:

(1) I dreamt that I was Brigitte Bardot and that I kissed me.


(2) John believes that Elvis lives in Brooklyn.

Counterfactual conditionals

If Proust had travelled on Titanic, Remembrance of Things Past would not have been completed.

• In order to characterize the conditions for the truth of these sentences, we need to consider alternative worlds, in addition to actual worlds.
Referential theories of meaning

• A note on the notion of a ‘possible world’

David Lewis 1973. Counterfactuals (an analysis of counterfactual conditionals in terms of the theory of possible worlds, cp. If that match had been scratched, it would have lighted.)

“There are many ways things could have been besides the way they actually are. On the face of it, this sentence is an existential quantification. It says that there exist many entities of a certain description, to wit, ‘ways things could have been.’ I believe permissible paraphrase of what I believe; taking the paraphrase at its face value, I therefore believe in the existence of entities which might be called ‘ways things could have been’. I prefer to call them ‘possible worlds’” (p.84).

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Referential theories of meaning

- Indirect relation between word and world

\[
\text{WORD} \quad \longleftrightarrow \quad \text{CONCEPT} \quad \longleftrightarrow \quad \text{INDIVIDUAL IN A POSSIBLE WORLD}
\]

- unicorn
- Santa Claus
- the future President of the USA
- a former beauty queen
- the present king of France
- the largest prime number

- Semantics that is enriched with possible worlds is called intensional semantics. The semantics of a variety of intensional expressions, like world-creating verbs and conditional sentences will be formulated in terms of reference here and now in the actual world, but also the referent in other evaluation worlds (at possible world indices).