Introduction to linguistics I: Meaning and Use

Summer Term 2006

Daniel Wiechmann
daniel.wiechmann(at)uni-jena.de
www.daniel-wiechmann.net
03641-944534

Office hour: Mo 3.00 - 4.00

Scope of this course

1. Prerequisites
   a. What is linguistic knowledge?
   b. What are the functions of language?
   c. What are the design features of natural language?
   d. What branches and methods are there in linguistics?
2. Meaning: Approaches to the semantics of natural languages
3. Beyond meaning: Speech Act Theory and Gricean Inference

Course schedule

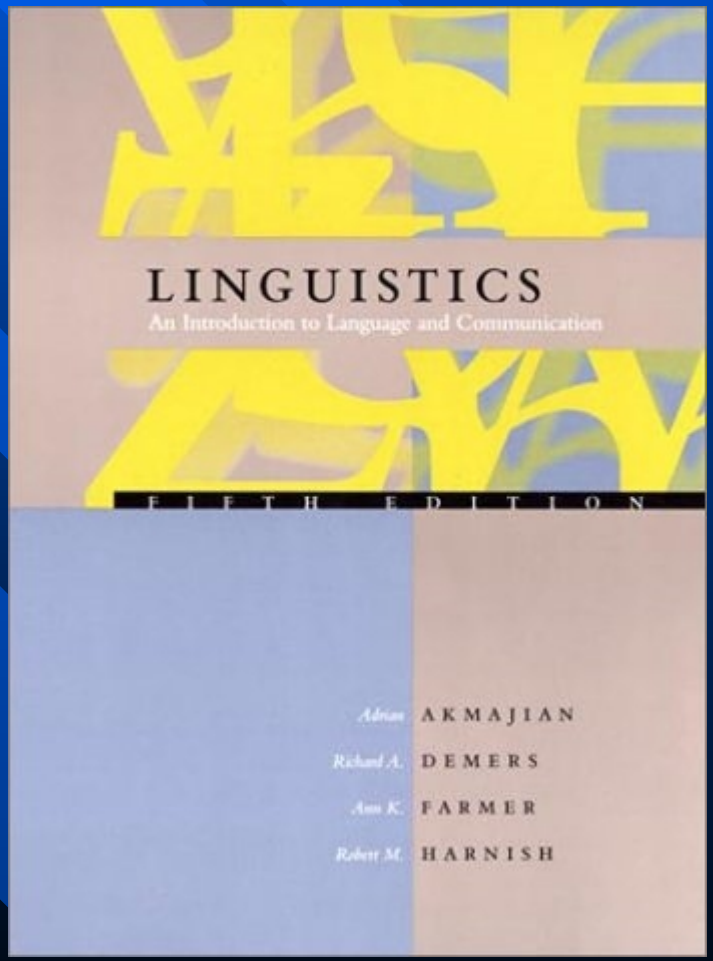
Introduction to Linguistics I: Meaning and Use/ Summer Term 2006/ Daniel Wiechmann/				
			session topic	reading
19.4.	1	preliminaries	introductory session	n.a.
			the sign & functions of language	Akmajian et al. 1995 p. 5-9 AND Dirven/Verspoor 1998/2004 1-4
26.4.	2			
3.5.	3		linguistic knowledge	Fromkin/Rodman 1998 3-27
10.5.	4		design features of language	Yule 1996 p. 19-69
17.5.	5		branches and methods in linguistics	Saeed Ch. 1 3-22
24.5.	6	semantics	meaning, thought and reality	Saeed Ch. 2 23-52
31.5.	7		(cont)	(cont)
7.6.	8		word meaning	Saeed Ch. 3 53-79
14.6.	9		sentence relations and truth	Saeed Ch. 4 79-106
21.6.	10		(cont)	(cont)
28.6.	11	pragmatics	Gricean maxims	Saeed Ch. 7 172-202
29.6.	12		(cont)	(cont)
5.7.	13		speech act theory	Saeed Ch. 8 203-227
12.7.	14		(cont)	(cont)
19.7.	15		final exam	Good Luck

Course requirements

1. Come to class prepared, and participate
2. Short homework assignments asking you to discuss (some aspect of) a text
3. Final exam

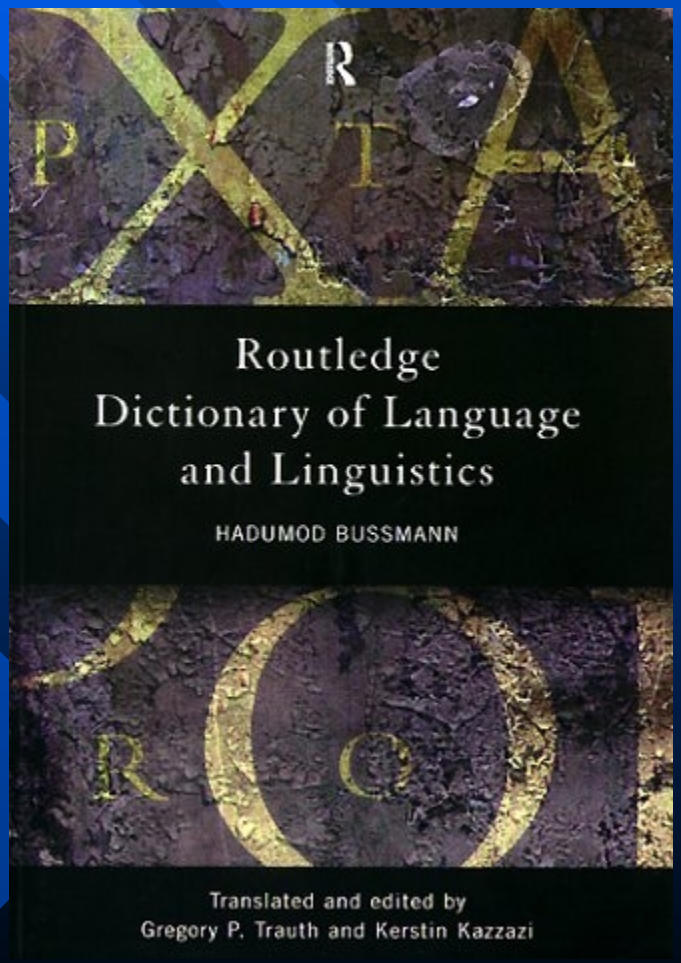
Recommendations: General Intro

- Akmajian et al. (2001) Linguistics: An Introduction to Language and Communication. Cambridge, MA: MIT Press



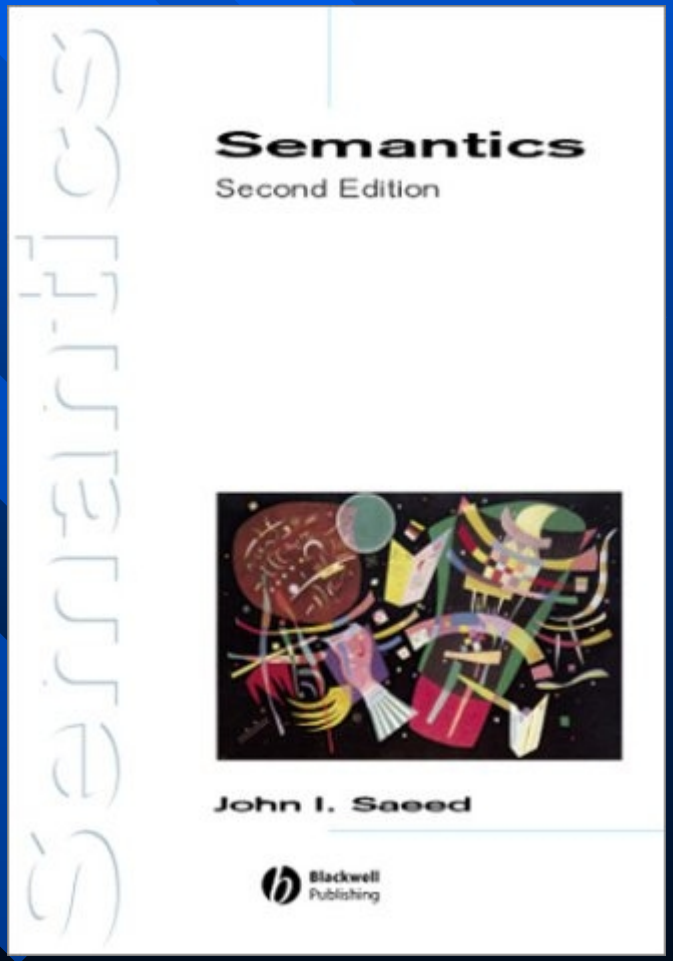
Recommendations: Resource

- Bußmann (1999) Routledge Dictionary of Language and Linguistics.
  - ISBN 0415203198
- Lexikon der Sprachwissenschaft
  - ISBN 3520452030



Recommendations: Course book

- Saeed (2003) Semantics
  - ISBN: 0631226931



What is (natural) language?

- Language is a **system of communication**
- **Human language** is the **most powerful communication system** in the known universe

What is (natural) language?

- "Natural language" only applies to a language that has evolved naturally, and the study of natural language primarily involves native (first language) speakers.
- The understanding of natural languages reveals much about how the human mind and the human brain function.

What is linguistics?

- Linguistics is the scientific study of human language.
- How do we get from the physical properties of the sound waves in utterances to the intentions of speakers towards others in conversations?
  - switch to praat visualization about here
  - sound snippet

What is linguistics?

- Linguistic description is an attempt to reflect a speaker‘s (unconscious) knowledge about his native language.
- This description is devided into a set of subfields (branches)

What is linguistics?

- Branches of linguistics (core):
  - Phonetics
  - Phonology
  - Morphology
  - Syntax
  - Semantics
  - Pragmatics

Introduction to Phonetics and Phonology

Introduction (II): Morphosyntax

Introduction (I): Meaning and Use

What else is there?

(peripheral branches)

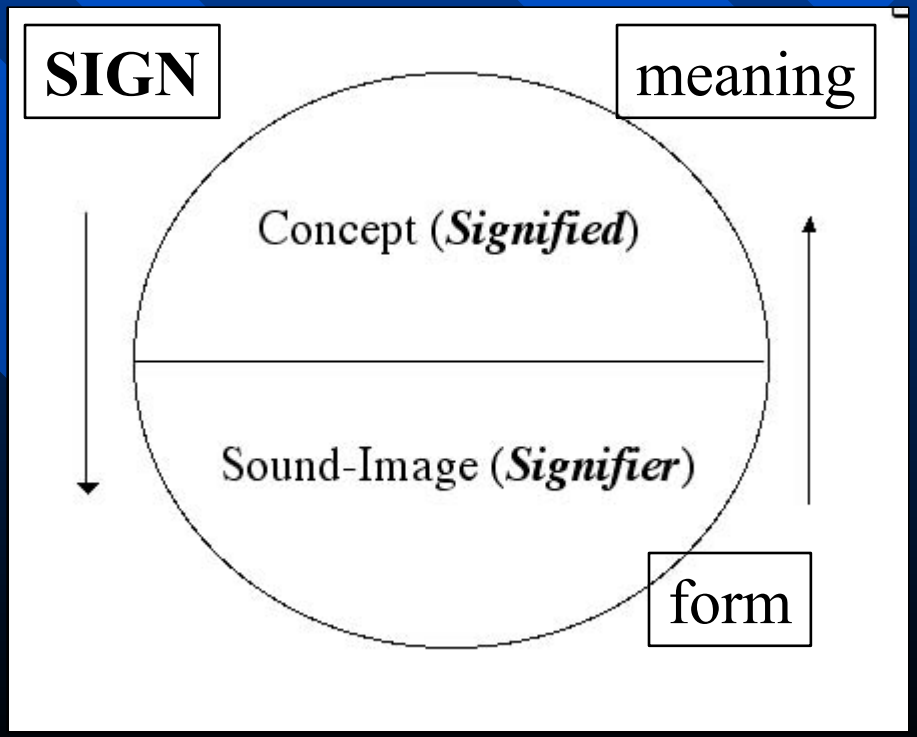
- Psycholinguistics
  - Neurolinguistics
- Computational linguistics
  - Corpus-linguistics
- Discourse analysis
- Historical linguistics
- Applied linguistics
- [...]

} Natural Language Processing

Symbolic units (signs)

- Language can be viewed as a system of signs, i.e. pairings of form and meaning.
- A sign is something which *stands for* something else.

Two sides of the coin:
Form and **Meaning**



Semantics - The study of meaning in language

i. I did not mean to hurt you.

intention

ii. He never says what he means.

intention to convey meaning

iii. She never means what she says.

intention diverging from meaning

---

*Cf. Ogden, C. K. & I. A. Richards. 1923. *The meaning of meaning*. London: Kegan Paul.

Semantics - The study of meaning in language

i. Life without faith has no meaning.

value, significance

ii. What is the meaning of *carnivorous*?

language meaning

iii. What do you mean by the word *concept*?

speaker meaning

iv. Dark clouds mean rain.

indexical meaning

Semantics - The study of meaning in language

i. He means well, but he's rather clumsy.
friendly disposition, intentions

ii. It was John I meant not Harry.
reference

iii. Fame and riches meant nothing to the true scholar.
importance, significance

Semantics - The study of meaning of language

Language/linguistic meaning

Linguistic expressions have (conventional) meanings

Reference

Linguistics expressions stand in some relation to an extra-linguitic reality (world)

Speaker meaning

What speakers try to communicate is usually richer than what is said (strictly speaking).

Semantics - The study of meaning of language

Language/linguistic meaning

<bank> :
1. financial institution
2. Land sloping along each side of a river

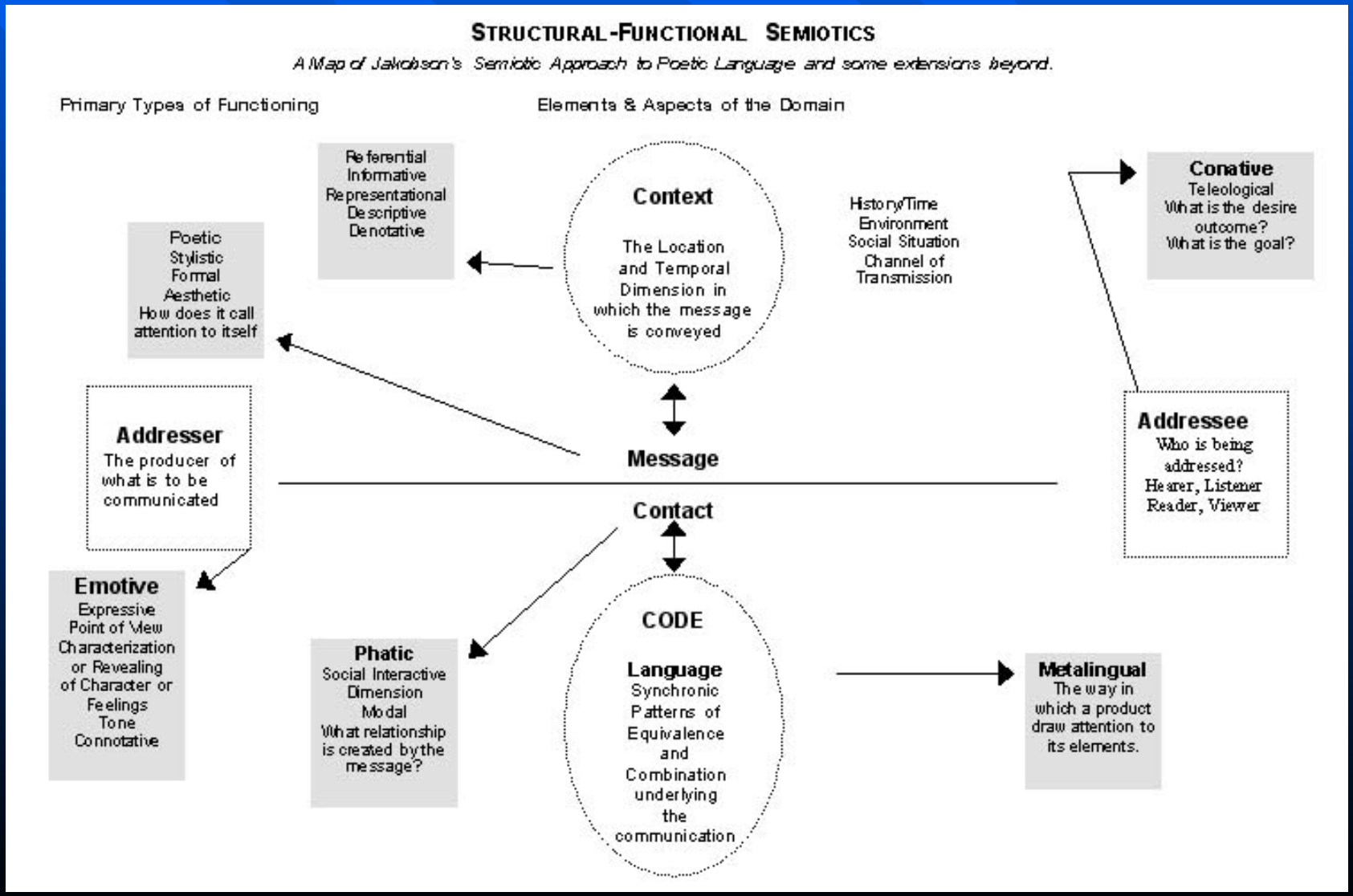
Reference

<bank> ⟺

Speaker meaning

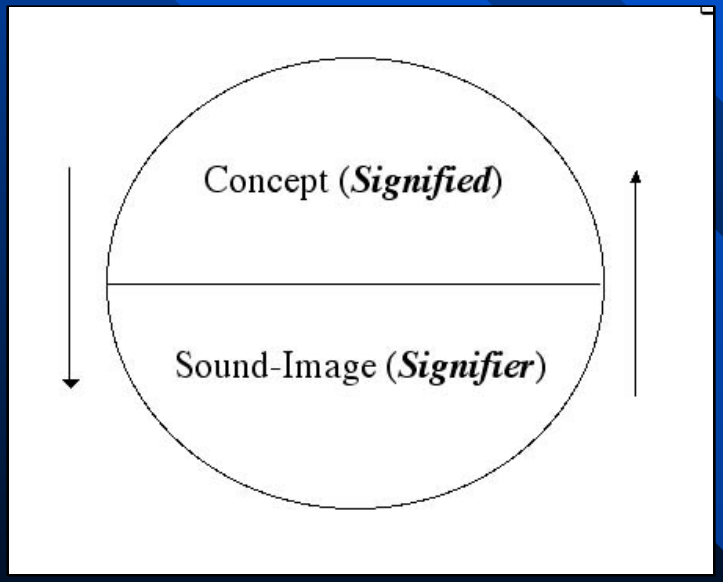
S1: What time is it?
S2: Well, the milkman has just come.

Functions of language



Signs

Ferdinand de Saussure (1857-1913)



What relations can hold between form and meaning?

Sign: pairing of form F and meaning S

C.S. Peirce (1839-1914)

Signs

link between F and S

motivated

not motivated (arbitrary)

contiguity

similarity

convention

Index

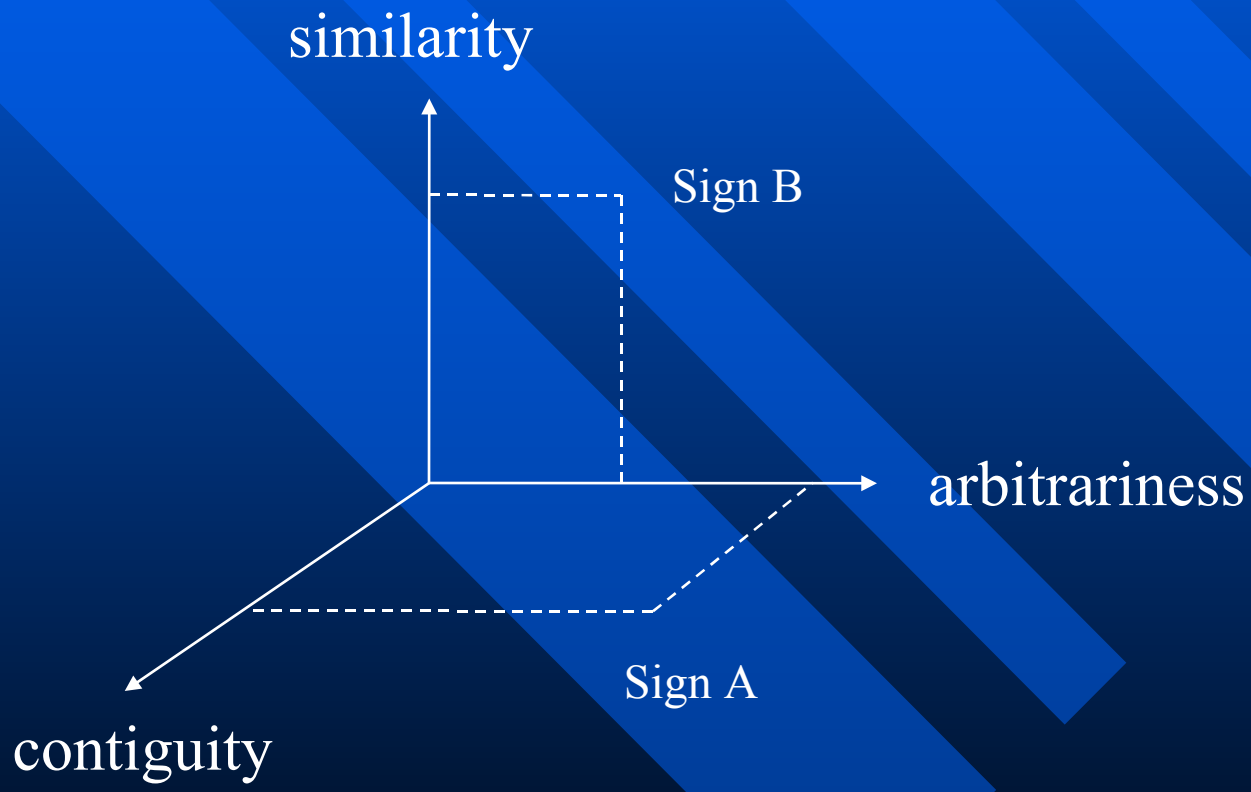
Icon

Symbol

Signs

i. signpost for traffic pointing towards the direction of the next town
ii. inverted triangle (traffic sign)
iii. smoke
iv. <smoke>
v. raising of eyebrows
vi. 3 (Arabic number)
vii. III (Roman number)

Signs



The principle of indexicality in language

i. I am now here

The principle of indexicality in language

Indexical (deictic) expressions

I, you, he,...
Now, then, tomorrow ...
Here, there, ...
come, go, ...
[...]

Need to be interpreted against a deictic centre

The principle of indexicality in language

deictic orientation versus **inherent orientation**

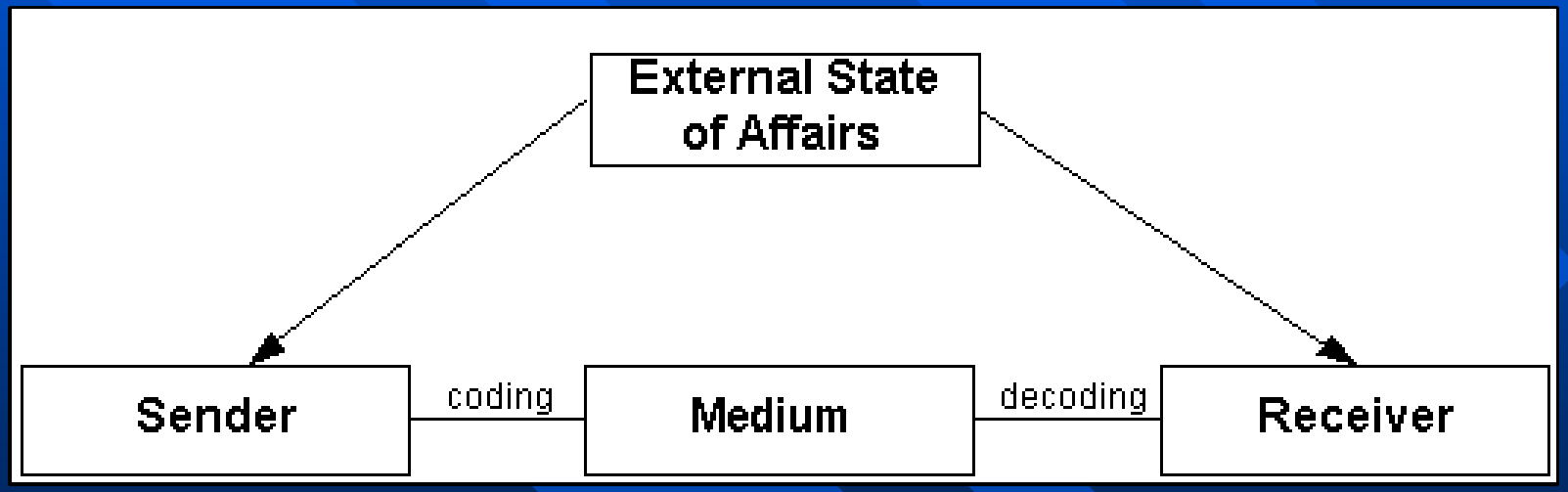
The principle of iconicity in language

I. **Principle of sequential order**
   Virginia got married and had a baby
   Bill painted the *green door*|*door green*

II. **Principle of distance**
   I made her leave
   I wanted her to leave
   I hoped that she would leave

III. **Principle of quantity**
   That‘s a looooooong story

A simple model of communication

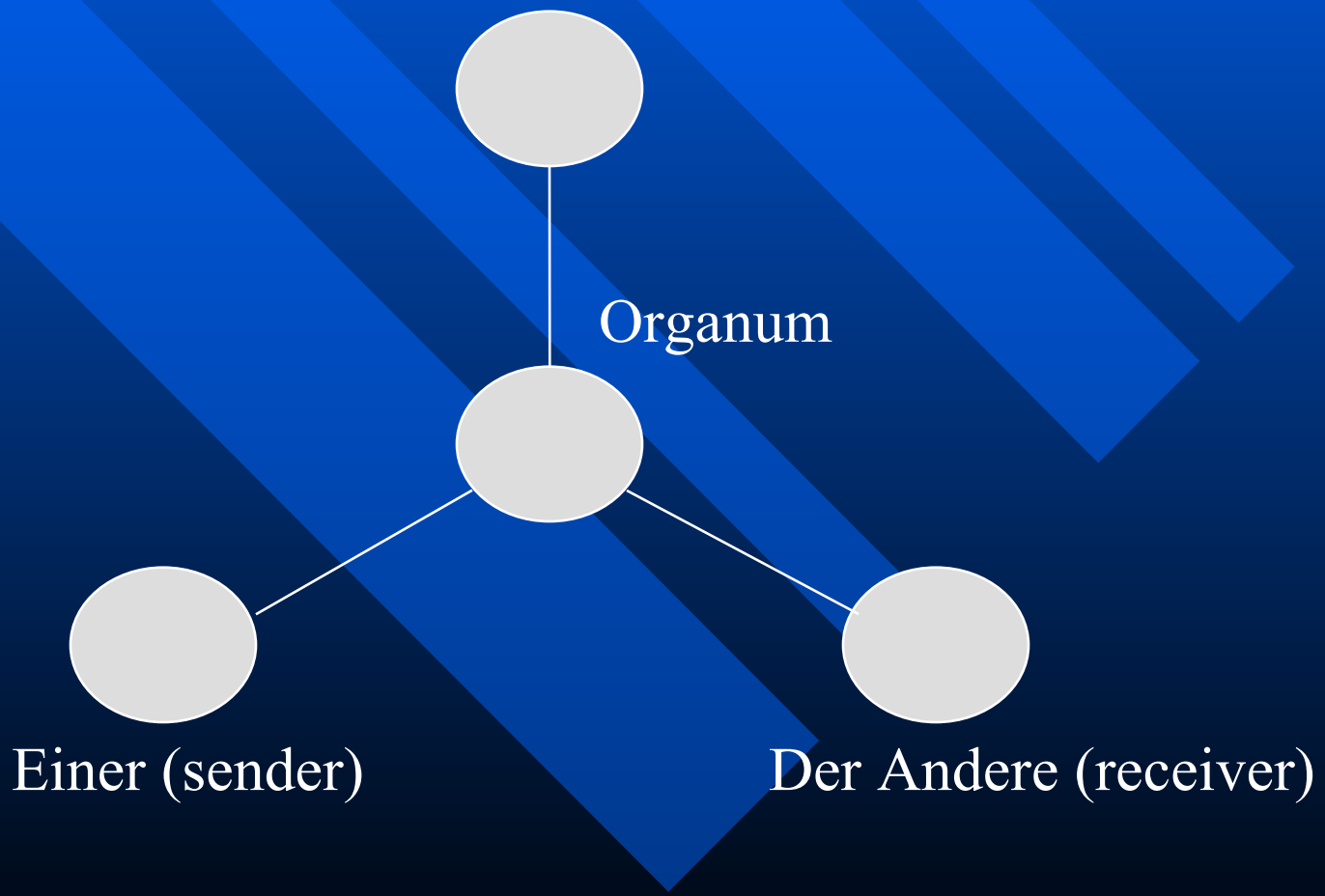


- concentrates on the (intentional) "transfer" of information

(i) *I did not manage to get my ideas on paper*
(ii) The lecturer did not get his ideas across

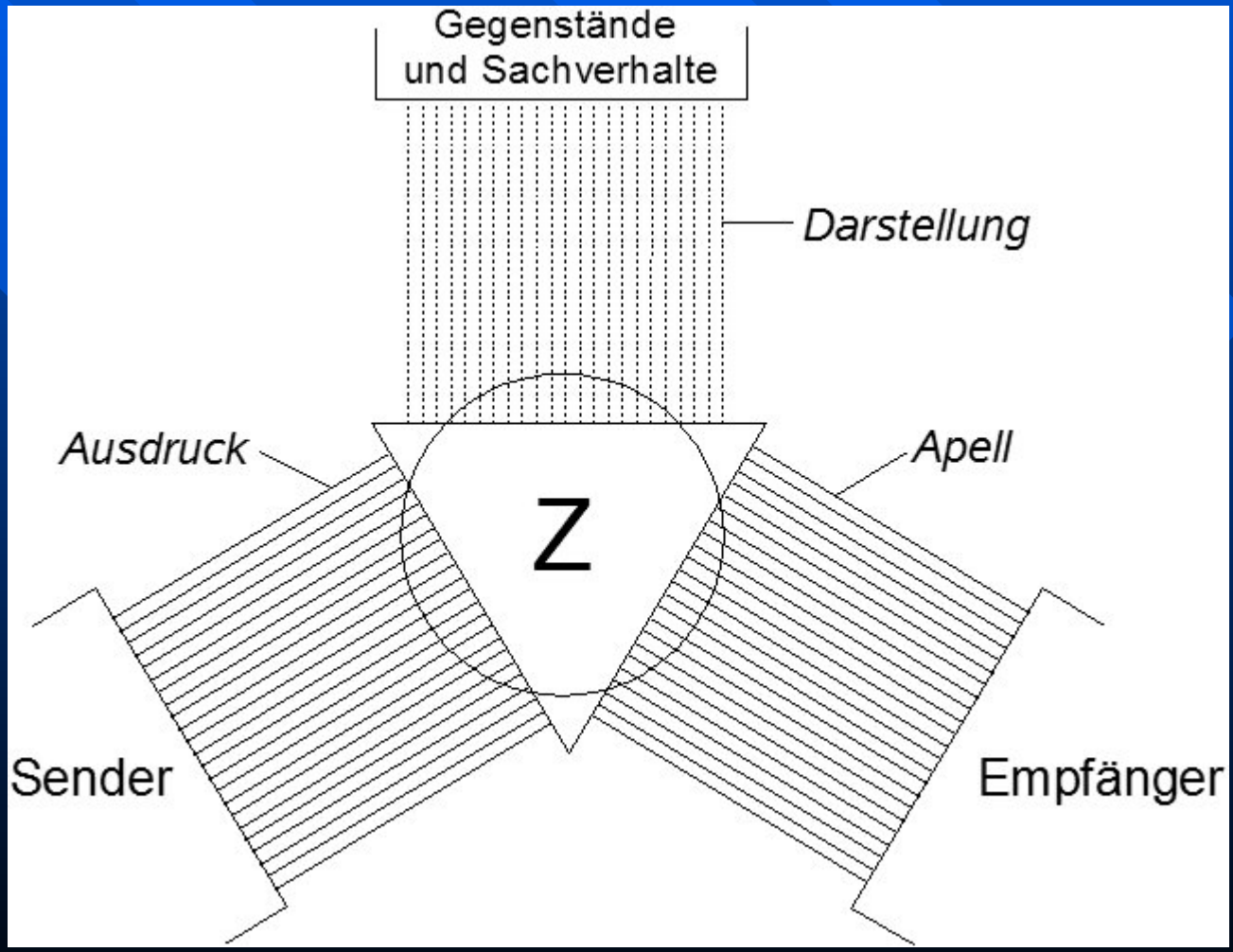
Bühler I

Karl Bühler (1879-1963)



Bühler II: Organon Modell

Karl Bühler (1879-1963)



Multiple levels: An example

Scenario:
A and B are sitting in a car. A is driving. B is on passenger seat.

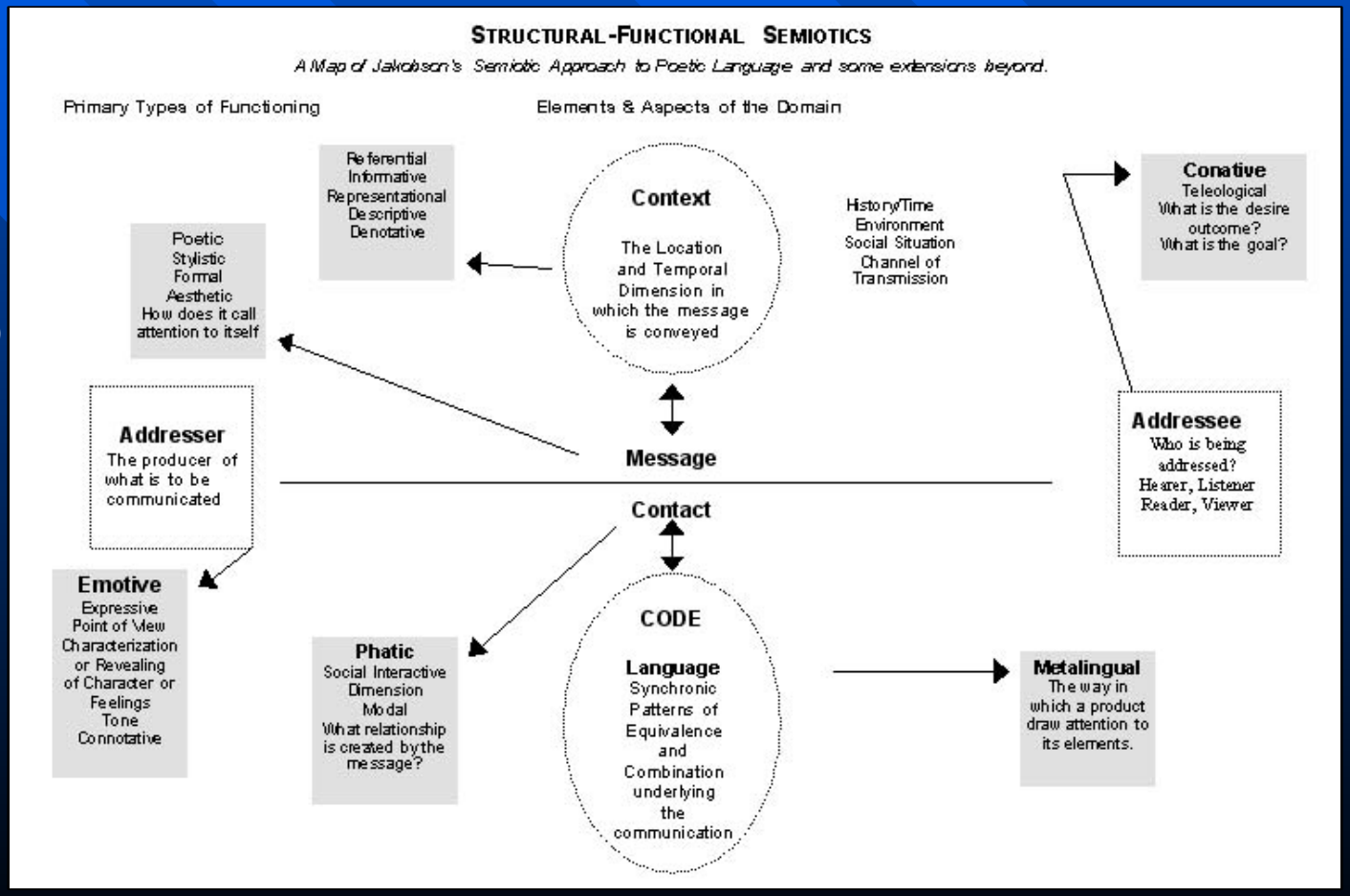
B:"It's green."

Aspects of the message:

- Sachverhaltsinformation (**descriptive**):
  The traffic-lights indicate that crossing the road is now permitted.
- Appell (**conative**):
  Get going!
- Beziehungshinweis (**phatic**):
  Your reaction time is longer than mine
- Selbstoffenbarung (**emotive**):
  I am in a hurry!

Jacobson

Roman Jacobson (1896-1982)



Jacobson

Roman Jacobson (1896-1982)

Communication functions
1 *referential* (= contextual information)
2 *poetic* (= autotelic)
3 *emotive* (= self-expression)
4 *conative* (= vocative or imperative addressing of receiver)
5 *phatic* (= checking channel working)
6 *metalingual* (= checking code working)

Jacobson

Roman Jacobson (1896-1982)

"One of the six functions is always the dominant function in a text and usually related to the type of text."

For example, in poetry, the dominant function is the poetic function: the focus is on the message itself.

The properties of language

communicative vs. informative signals
(intentional vs. Unintentional)

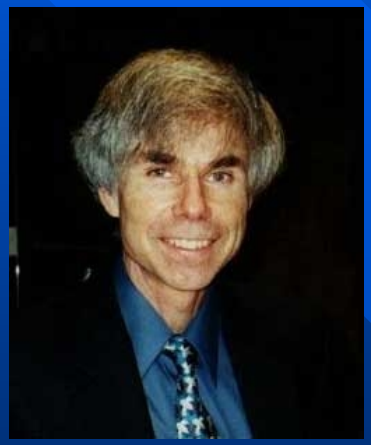
examples: signals

i. me sneezing
ii. me shifting around in my seat
iii. me wearing non-matching socks
iv. 'I would like to apply for the vacant position'

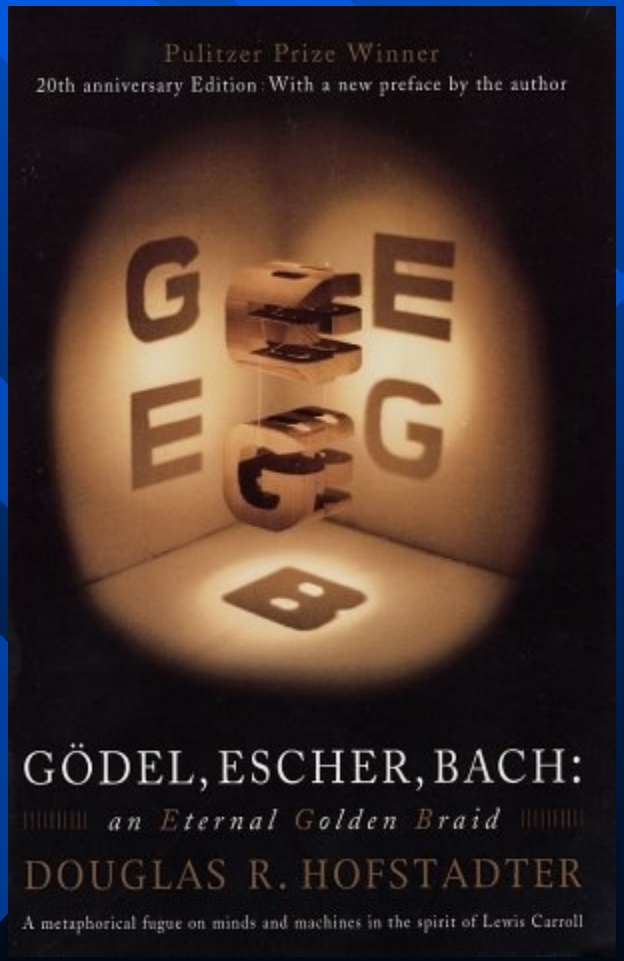
What is (natural) language: Design features

- Arbitrariness
  - There is no rational relationship between a sound and its meaning (i.e. there is nothing "housy" about a house.)
- Discreteness
  - L is composed of discrete units that are used in combination to create meaning
- Duality
  - L works on two levels at once, a surface level and a semantic (meaningful) level.
- Productivity
  - A finite number of units can be used to create an infinite number of utterances.
    - (cf. recursion)
- Displacement
  - Languages can be used to communicate ideas about things that are not in the immediate vicinity either spatially or temporally.
- Cultural transmission
  - Language is passed from one language user to the next, consciously or unconsciously.

An aside:
This one book for this lonely island...



Douglas Hofstadter
(1945-)



"In order to understand recursion, one must first understand recursion."

"If you already know what recursion is, just remember the answer. Otherwise, find someone who is standing closer to Douglas Hofstadter than you are; then ask him or her what recursion is."

Knowledge of language

A speaker's linguistic knowledge is tacit, i.e. unconscious.

Linguistics is the attempt to make this knowledge explicit.

(maybe switch to processing quickly)

Knowledge of language

Knowledge of linguistic structures (morphology and syntax)
-interpretation of language is structure dependent

Knowledge of the sound system (phonology)
-identification of sounds and sound sequences in language

Knowledge of words (lexical semantics)
-sound sequences signify some concept or meaning

Knowledge of language

Phenomenon 1:

(s) All the passengers on the plane would rather listen to Abbott and Costello than watch another crummy movie.

Phenomenon 2:

(s_1) Sara is a graduate student.
(s_2) William believes [that Sara is a graduate student].
(s_3) Peter said [that William believes [that Sara is a graduate student.]]
(s_4) Mary remarked [that Peter said [that William believes [that Sara is a graduate student.]]]
[s_1, ... , s_n]

Knowledge of language

From this it follows that a speaker (S) cannot have simply memorized the complete set of sentences of a language (L).
(=the knowledge of L cannot be characterized as a list of sentences)

As a working hypothesis, we will say that **linguistic knowledge** is better conceived of as consisting of a finite set of rules and principles (**mental grammar**) applied to a finite set of lexical items (**mental lexicon**).

Knowledge of language: curious stuff

(i) John is difficult to love.
(ib) It is difficult to love John.

(ii) John is anxious to go.
(iib) *It is anxious to go John.

(iii) John promised me to go.
(iv) John persuaded me to go.

Knowledge of language and performance

Competence and Performance

(vi) A man that a woman loves ...
(vii) A man that a woman that a child knows loves ...
(viii) A man that a woman that a child that a bird saw knows loves ...
(ix) A man that a woman that a child that a bird that I heard saw knows loves ...

Ad infinitum (?)

Knowledge of language

Structure dependence principle:

All grammatical operations are structure dependent.

» e.g. question formation rule in English (yes/no -questions)

Structure dependency:
An example

Mininmal assumption: No structure dependency

Declarative: John can lift 500 pounds
1 2 3 4 5
Interrogative: Can John lift 500 pounds?
QR: Move item 2 to initial position

Now, consider:

- Many linguists are thought to be odd.
- The people who are standing there will leave soon.

Question formation rule

To form a (bipolar) question from a *declarative* sentence, locate the first *auxiliary verb* that follows the *subject* of the sentence and place it immediately to the left of the subject.

So, what do we “know” about language

✓Wherever humans exists, language exists.
✓There are no primitive language – all languages are **equally complex**
✓All languages **change through time**
✓The **relationships** between **forms and meanings** is for the most part **arbitrary**, but...
✓All languages utilize a **finite set** of discrete sounds (/forms) that are combined to form meaningful elements (words), which themselves form an **infinite set** of possible sentences
✓All **grammars** (mental grammars/competence) **contain rules** for the **formation** of **words** and **sentences,** but...
.

Block II: Semantics

Saeed (1997)

Chapter 1:Semantics in Linguistics

Three challenges

1. Circularity
2. Context
3. Status of linguistic knowledge

Three challenges

1. Circularity

How can we state the meaning of a word, except in other words, either in the same or a different language?

Example:
Ferret: 'domesticated albino variety of the polecat, *Mustela putorius*, bred for hunting rabbits, rat, etc.'

Can we ever step outside this circle, i.e. step outside language to describe language?

Three challenges

2. Context

Features of context are part of the meaning of an utterance

Example:
“Marvelous weather you have here in Ireland”

Three challenges

3. Status of linguistic knowledge

How can we make sure that our definitions of a word's meaning are correct?

Related issues:
linguistic knowledge – encyclopedic knowledge
idiolect

Meeting the challenges

Coping with circularity:

Designing a metalanguage with which we can describe the semantics and the rules of all languages

object language – metalanguage

But: Is such a metalanguage attainable?

Meeting the challenges

Coping with relating linguistic to encyclopedic:

metalanguage might help here as well, since meaning representations involves arguing about which elements of knowledge should be included

Meeting the challenges

Coping with context:

traditional solution:
split expression's meaning:

context-free elements of meaning (semantics)
local contextual effects (pragmatics)

But: This is not exactly easy.

Outlook

Attempt to create a semantic metalanguage

NOTE:
Although chapter 2 touches some of the issues already, the attempt to create a semantic metalanguage will be made only in chapter 10 of the book, which we will not be concerned with in this course.

We will only observe semantic relations among words (Ch. 3) and semantic relations that hold between sentences (Ch. 4).

These latter relations will be described by means of the notion of **truth**, which has grown out of the study of logic

However, we will have a look at the semantics/pragmatics-distinction (Ch. 7).

Meaning, Thought and Reality (Chapter 2)

"How is it possible [...] that by uttering strings of sounds I can convey information to a listener about what is happening in a scene, say outside my window?"

Reference as meaning

The referential theory holds that the meaning of a proper name is simply the individual to which, in the context of its use, the name refers.

(individual: numerically singular thing)

Meaning, Thought and Reality (Chapter 2)

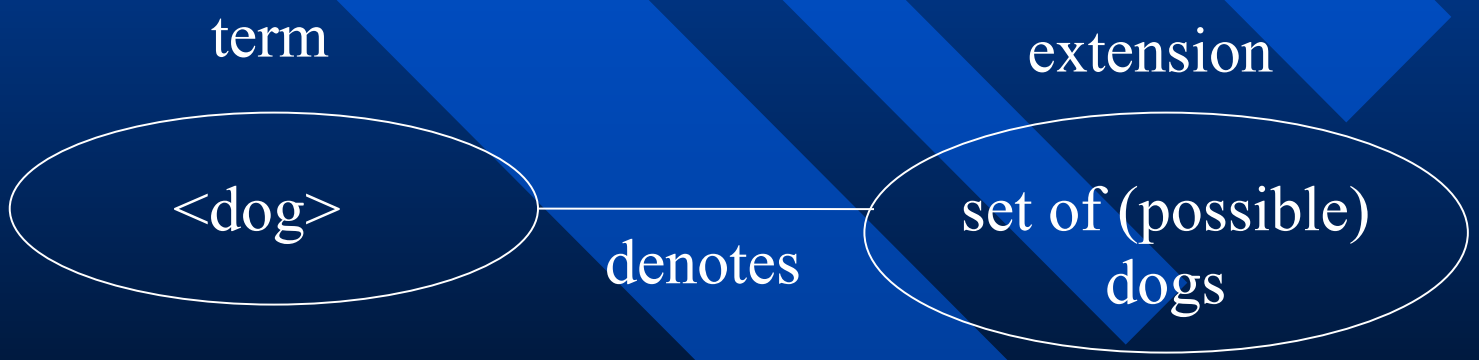
(i) I saw **Michael Jackson** on television last night.

(ii) We've just flown back from **Paris**.

'Michael Jackson' : referring expression
Micheal Jackson : referent

Meaning, Thought and Reality (Chapter 2)

Extension and Denotation



Referential theory of meaning

Linguistic expression type		real world referent
proper names (John, Germany, earth)	denote	individuals
common names (girl, planet, country)	denote	sets of individuals
verbs	denote	actions
adjectives	denote	properties of individuals
adverbs	denote	properties of actions
sentences	denote	situations/ events

Meaning, Thought and Reality (Chapter 2)

Referring (R) vs. non-referring (NR) expressions

examples NR expressions
(*and, so, very, maybe, if, not, all*)

But nouns are R expressions, aren't they?

Have a look at indefinite noun phrases:

(iii) They performed a cholecystectomy this morning
(iv) A cholecystectomy is a serious procedure

Meaning, Thought and Reality (Chapter 2)

Constant vs. variable reference

(v) I wrote to you.
(vi) She put it in my office.

Expressions with variable reference deictic (or indexical) expressions

Meaning, Thought and Reality (Chapter 2)

The referential approach to meaning: Problems

i. In the painting a unicorn is ignoring the maiden
ii. World War Three might begin in the balkans
iii. Batman is a wimp

If a speaker using these expressions is not referring to anything in reality, and such *reference is meaning*, how *do* these sentence have meaning?

Meaning, Thought and Reality (Chapter 2)

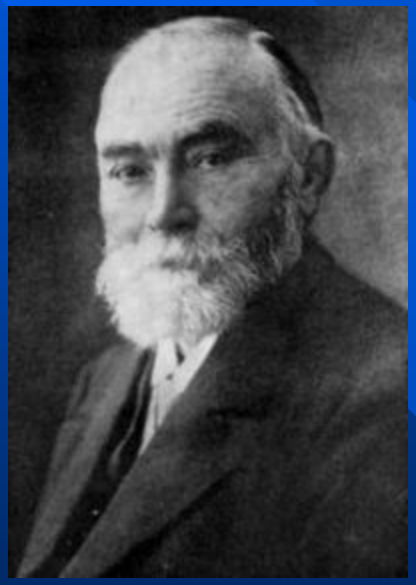
Further problems

Even if we are talking about things in reality, there is not always a one-to-one relationship between a linguistic expression and the thing we want to identify

i. Then in 1981 **Answar El Sadat** was assassinated.
ii. Then in 1981 **the President of Egypt** was assassinated.

Same reference, but same meaning?

Sense and reference



Gottlob Frege

1848-1925

German mathematician, logician, and philosopher who worked at the University of Jena.

Frege essentially reconceived the discipline of logic by constructing a formal system which, in effect, constituted the first ‘predicate calculus’.

In this formal system, Frege developed an analysis of quantified statements and formalized the notion of a ‘proof’ in terms that are still accepted today.

Frege conceived a comprehensive philosophy of language that many philosophers still find insightful.

Frege

Frege founded the modern discipline of logic by developing a superior method of formally representing the logic of thoughts and inferences.

Example	Frege's Notation	Modern Notation
John is happy	$\text{—}H(j)$	Hj
It is not the case that John is happy	$\neg H(j)$	$\neg Hj$
If the sun is shining, then John is happy	$H(j)$ $\quad S(s)$	$Ss \rightarrow Hj$
The sun is shining and John is happy	$H(j)$ $\quad S(s)$	$Ss \ \& \ Hj$
Either the sun is shining or John is happy	$H(j)$ $\quad S(s)$	$Ss \vee Hj$
The sun is shining if and only if John is happy	$\text{—}S(s) = H(j)$	$Ss \equiv Hj$

Figure: Frege's 'Begriffsschrift' (1879) already had the expressive power of modern predicate calculus.

Frege's puzzles

Frege's Puzzle About Identity Statements

Here are some examples of identity statements:

117+136 = 253.
The morning star is identical to the evening star.
Mark Twain is Samuel Clemens.
Bill is Debbie's father.

Frege's puzzles

Leibniz' Law of the **identity of indiscernibles** states that if there is no way of telling two entities apart then they are one and the same entity.

That is, entities *x* and *y* are identical if and only if any predicate possessed by *x* is also possessed by *y* and vice versa.

→ **x and y can be substituted *salva veritate***

Frege's puzzles

However, they are obviously **cognitively different**:

given: Marilyn Monroe (A) = Norma Jean Baker (B)

A=B is more informative than A=A

Someone who believes
that Marilyn Monroe is the most beautiful woman of all time
need not have the same attitude towards the proposition
that Norma Jean Baker is the most beautiful woman of all time

Meaning, Thought and Reality (Chapter 2)

Interim conclusion:

There is more to meaning then reference (i.e. sense)

Sense places a new level between words and the world: the level of ***mental representation***

Meaning, Thought and Reality (Chapter 2)

Referential theory of meaning

FORM:
<my house>
<house>

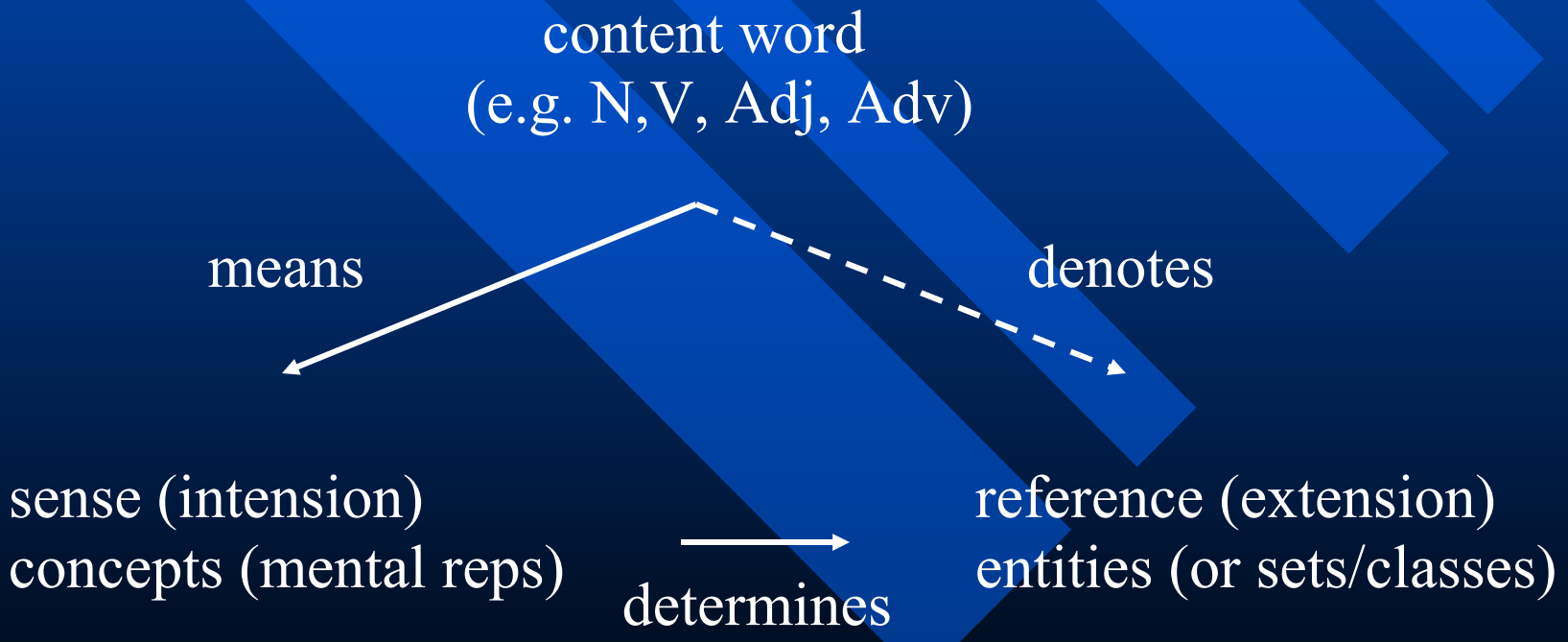
content word
(e.g. N,V, Adj, Adv)

MEANING:

reference (extension)
entities (or sets/classes)

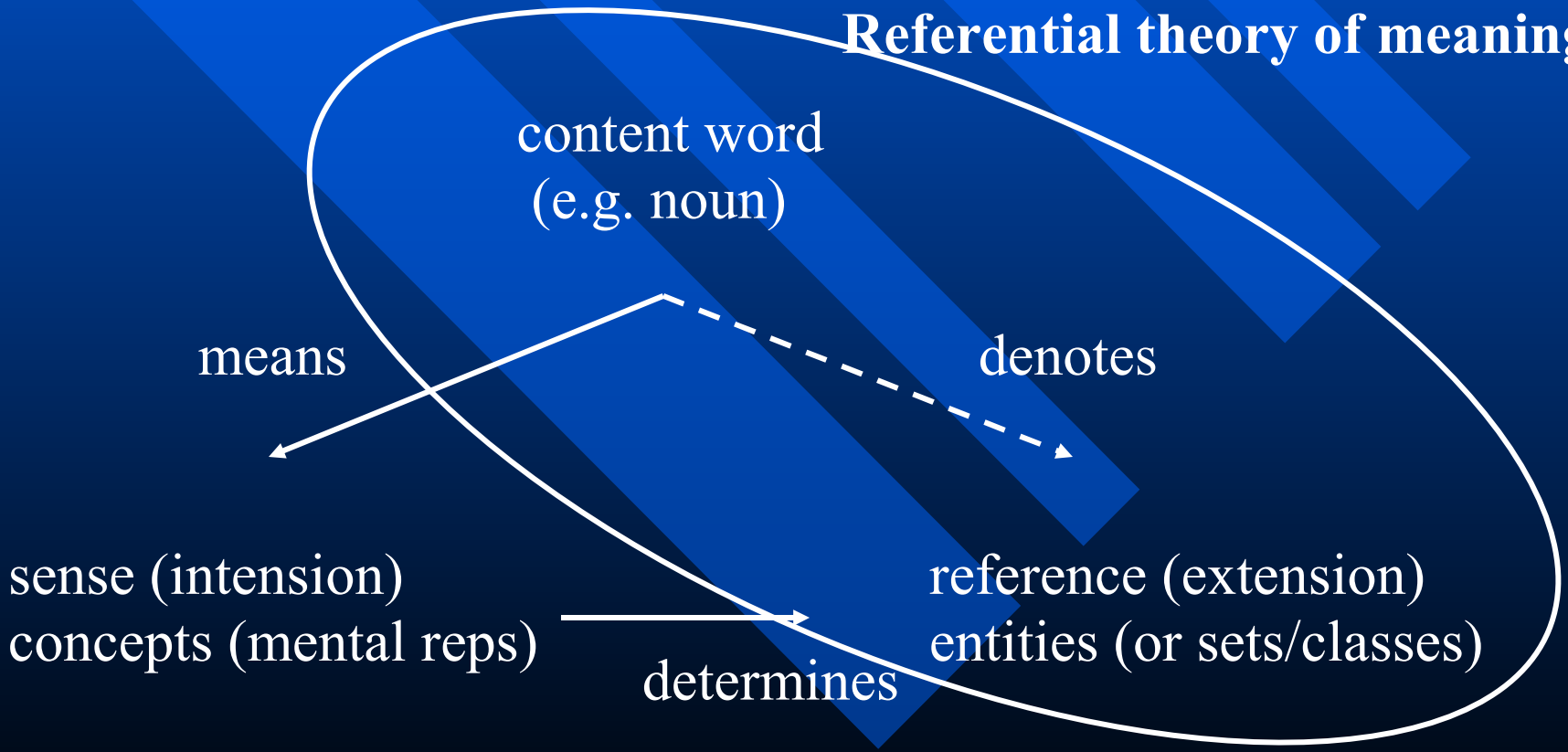
Meaning, Thought and Reality (Chapter 2)

Semiotic triangle for content words



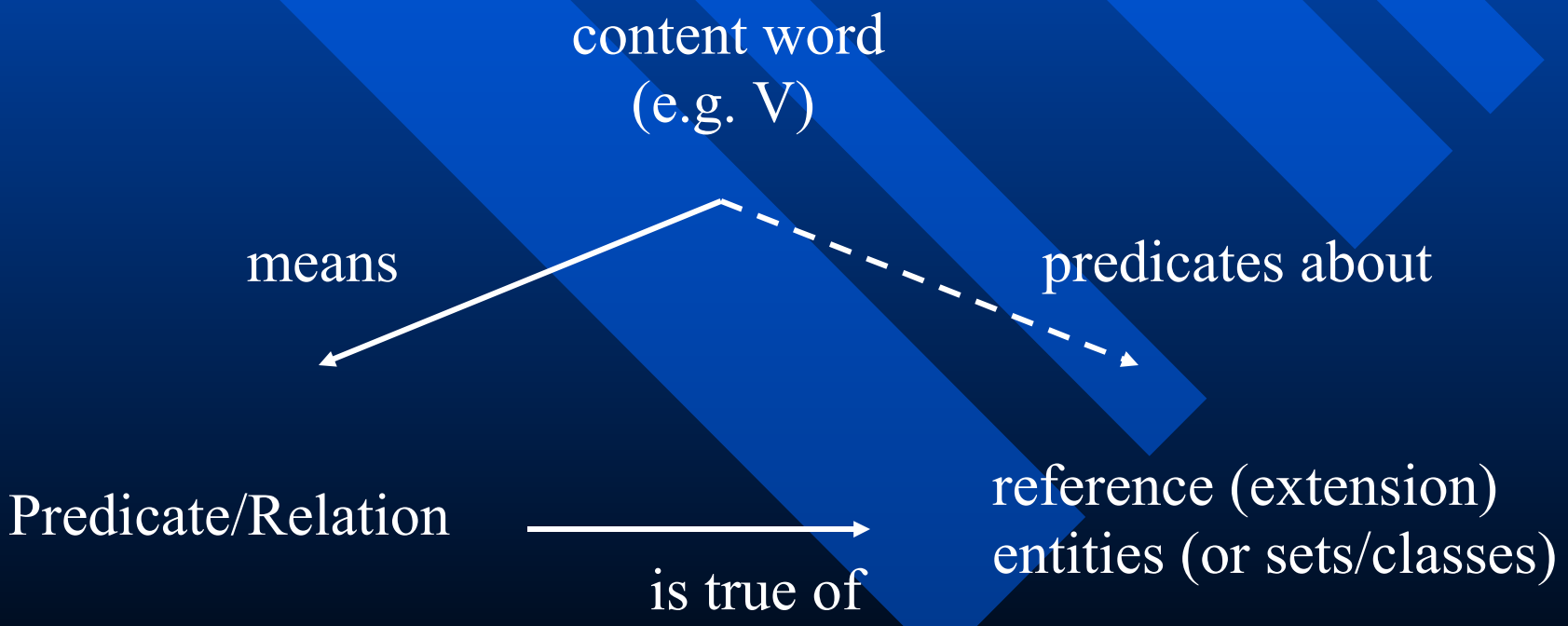
Meaning, Thought and Reality (Chapter 2)

Semiotic triangle for content words



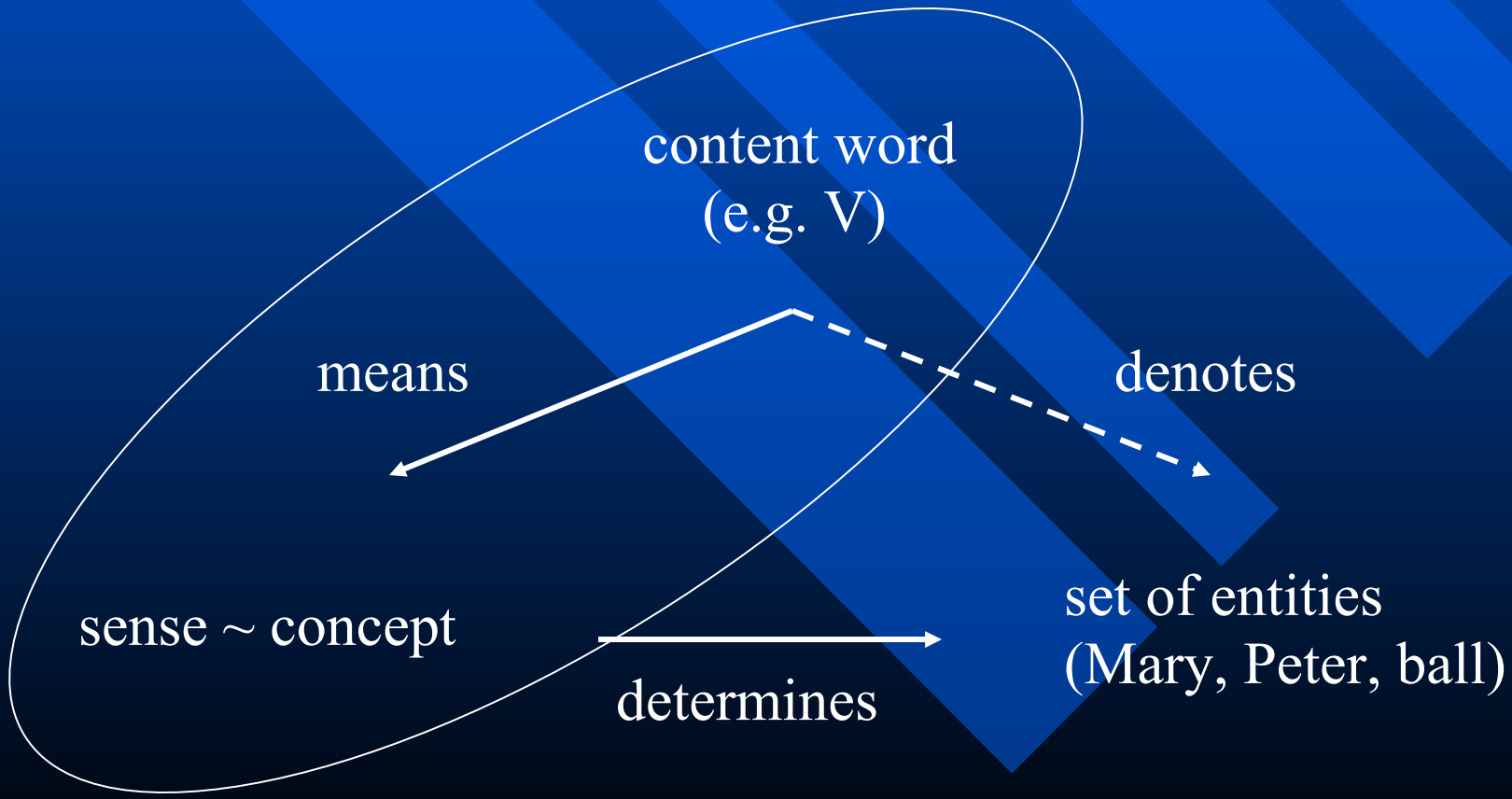
Meaning, Thought and Reality (Chapter 2)

Semiotic triangle for content words



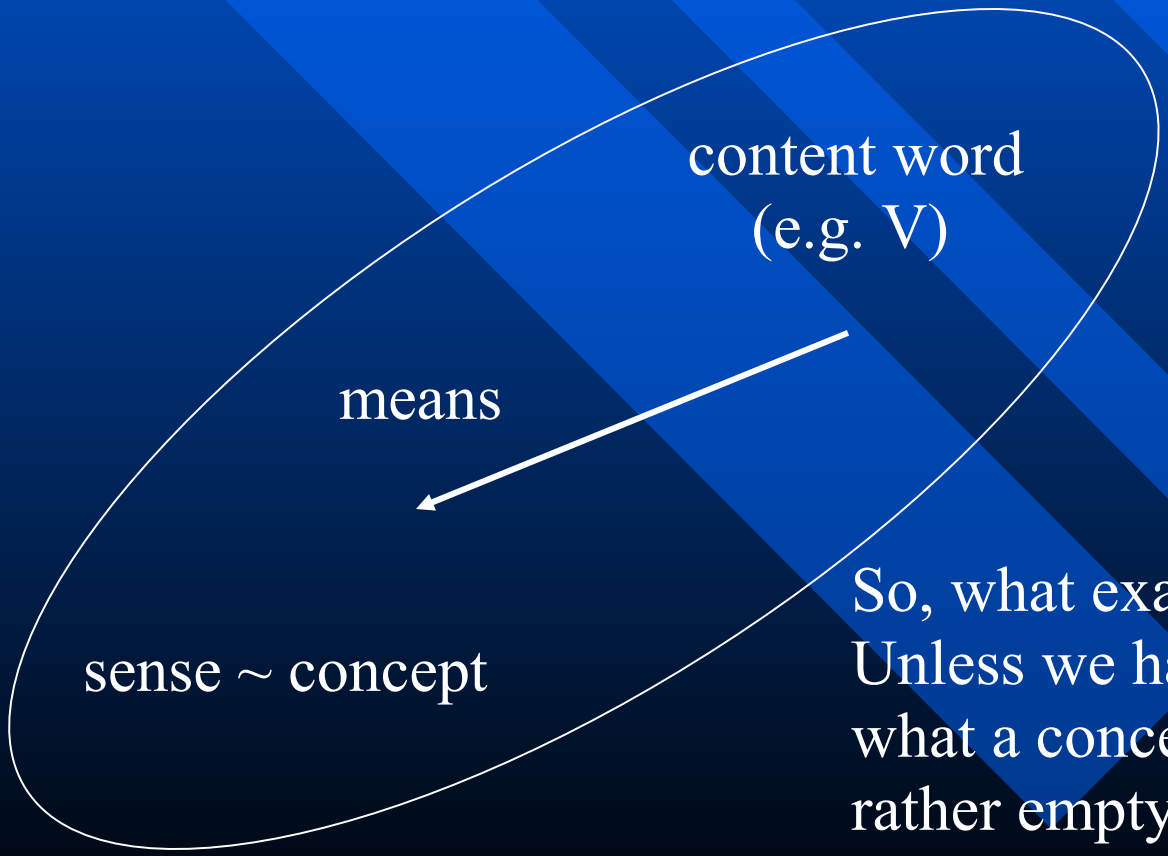
Meaning, Thought and Reality (Chapter 2)

Semiotic triangle for content words



Meaning, Thought and Reality (Chapter 2)

Semiotic triangle for content words



So, what exactly is a concept? Unless we have a good idea of what a concept is, we are left with rather empty definition.

Meaning, Thought and Reality (Chapter 2)

Concepts:

What form can we assign to concepts?
How do children acquire them?

(we will focus on **lexicalised** concepts)

Meaning, Thought and Reality (Chapter 2)

<u>Necessary and (jointly) sufficient conditions:</u>

WOMAN

X is a woman if and only if L

Where L is a list of attribute|properties|conditions like

x is human
x is adult
X is female

Meaning, Thought and Reality (Chapter 2)

<u>Necessary and (jointly) sufficient conditions:</u>

Problems:
Well, for WOMAN this might work, but what about, say, BACHELOR

x is human
x is adult
x is male
x is unmarried
x has never been married

Are these features jointly sufficient?
Are all of them necessary
What about the pope?

Meaning, Thought and Reality (Chapter 2)

Next session: Prototype Theory

(cancelled)

Course schedule

Introduction to Linguistics I: Meaning and Use/ Summer Term 2006/ Daniel Wiechmann/				
			session topic	reading
19.4.	1	preliminaries	introductory session	n.a.
			the sign & functions of language	Akmajian et al. 1995 p. 5-9 AND Dirven/Verspoor 1998/2004 1-4
26.4.	2			
3.5.	3		linguistic knowledge	Fromkin/Rodman 1998 3-27
10.5.	4		design features of language	Yule 1996 p. 19-69
17.5.	5		branches and methods in linguistics	Saeed Ch. 1 3-22
24.5.	6	semantics	meaning, thought and reality	Saeed Ch. 2 23-52
31.5.	7		(cont)	(cont)
7.6.	8		word meaning	Saeed Ch. 3 53-79
14.6.	9		sentence relations and truth	Saeed Ch. 4 79-106
21.6.	10		(cont)	(cont)
28.6.	11	pragmatics	Gricean maxims	Saeed Ch. 7 172-202
29.6.	12		(cont)	(cont)
5.7.	13		speech act theory	Saeed Ch. 8 203-227
12.7.	14		(cont)	(cont)
19.7.	15		final exam	Good Luck

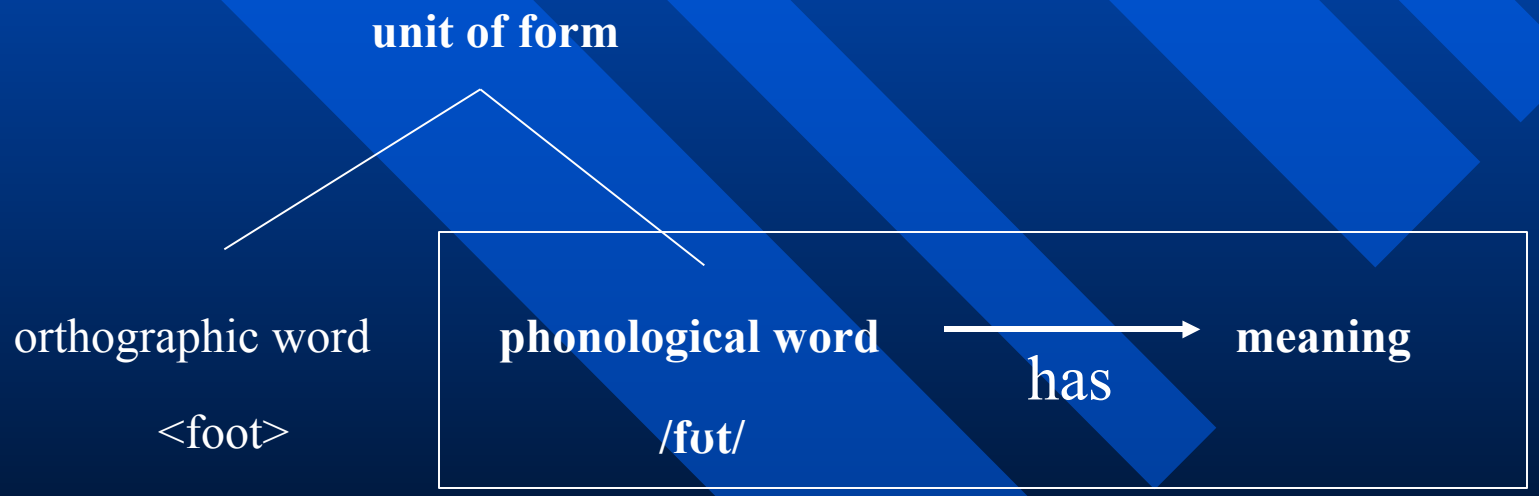
Word meaning (Chapter 3)

Working hypotheses (interim summary):

1. A ***word*** is a kind of ***linguistic sign***
1.1. A word is a ***pairing of form and meaning***
2. The description of word meaning involves the levels of intension (***sense***) and extension (***reference***)
3. A possible candidate of what sense is is the ***concept***, i.e. the ***mental representation***
3.1. A very influential approach to describing the semantic content of an expression is trying to find the **set of necessary and jointly sufficient conditions that define the concept**

Word meaning (Chapter 3)

What is a word?



Word meaning (Chapter 3)

Words in the mind

It is usually assumed in linguistics, that people must have a (relatively static) **storage device**, which is often called the ***mental lexicon*** or mental dictionary

Among the units in such a mental lexicon must be some basic entry forms, or ***lemmas***

Example: lemma *play*
play, plays, played, playing --> play (lemma)

Word meaning (Chapter 3)

Such lemmas (minimally) contain information about:

The pronunciation of the word (**phonological inf**)

- **/fʊt/**

The spelling of the word (**orthographical inf**)

- <foot>

Grammatical category of the word (**syntactic inf**)

- NOUN

Meaning/function of the word (**semantic inf**)

- List L of necessary and jointly conditions defining the concept

Word meaning (Chapter 3)

Another important kind of ***knowledge*** that people have about words involves the ***relations*** that words exhibit ***to other words*** in the system

Hence, the lexicon may be conceived of as a ***network***

Word meaning (Chapter 3)

So, what relations are there?

Ambiguity
Vagueness

Synonymy
Antonomy
Hyponymy
Meronymy

Word meaning (Chapter 3)

A form can be be associated with more than one meaning.
The meanings can be semantically related or unrelated:

Word meaning (Chapter 3)

Ambiguity vs. Vagueness

Are the meanings mutually exclusive?

Ambiguity

task for human comprehension system:
--> sense selection

Example: *bank*
bank1: financial institution
bank2: edge of a river

Vagueness

task for human comprehension system:
--> shade meaning such that it is appropriate to context (specification)

Example:
thing: Very general meaning (could be used to refer to anything)
baby: Depends on age and developmental stage of the child (denotation has flexible boundaries)

Word meaning (Chapter 3)

Meaning relations:

Synonymy: two forms have exactly the same meaning
--> true s~ is virtually non-existent in natural languages

If we disregard dialectal variation and very fine-grained semantic destinctions, we may find synonyms like

Examples:
Samstag - Sonnabend
Orange - Apfelsine
autumn - fall

Word meaning (Chapter 3)

Meaning relations:

Opposition: two forms have opposite meaning
--> there are many relations which show oppositeness

1. ***Antonomy***: *Antonyms* denote extreme opposites out of a range of possibilities

Examples:
old - young, big - small, difficult - easy

Word meaning (Chapter 3)

Meaning relations:

Opposition: two forms have opposite meaning
--> there are many relations which show oppositeness

2. ***Directional opposites*** are related to opposite directions on a common axis

Examples:
come - go, right of - left of, high - low
ascend - descend, yesterday - tomorrow

Word meaning (Chapter 3)

Meaning relations:

Opposition: two forms have opposite meaning
--> there are many relations which show oppositeness

3. ***Complementary opposites*** are logically complementary, i.e. the negation of one term is equivalent to the other term

Examples:
female - male, free - occupied, even - odd

Word meaning (Chapter 3)

Meaning relations:

Opposition: two forms have opposite meaning
--> there are many relations which show oppositeness

4. ***Heteronyms*** are elements of a set of terms which are contraries logically speaking

Examples:
days of the week, manner of motion verbs (*walk, run, swim, fly,...*)

Word meaning (Chapter 3)

Meaning relations:

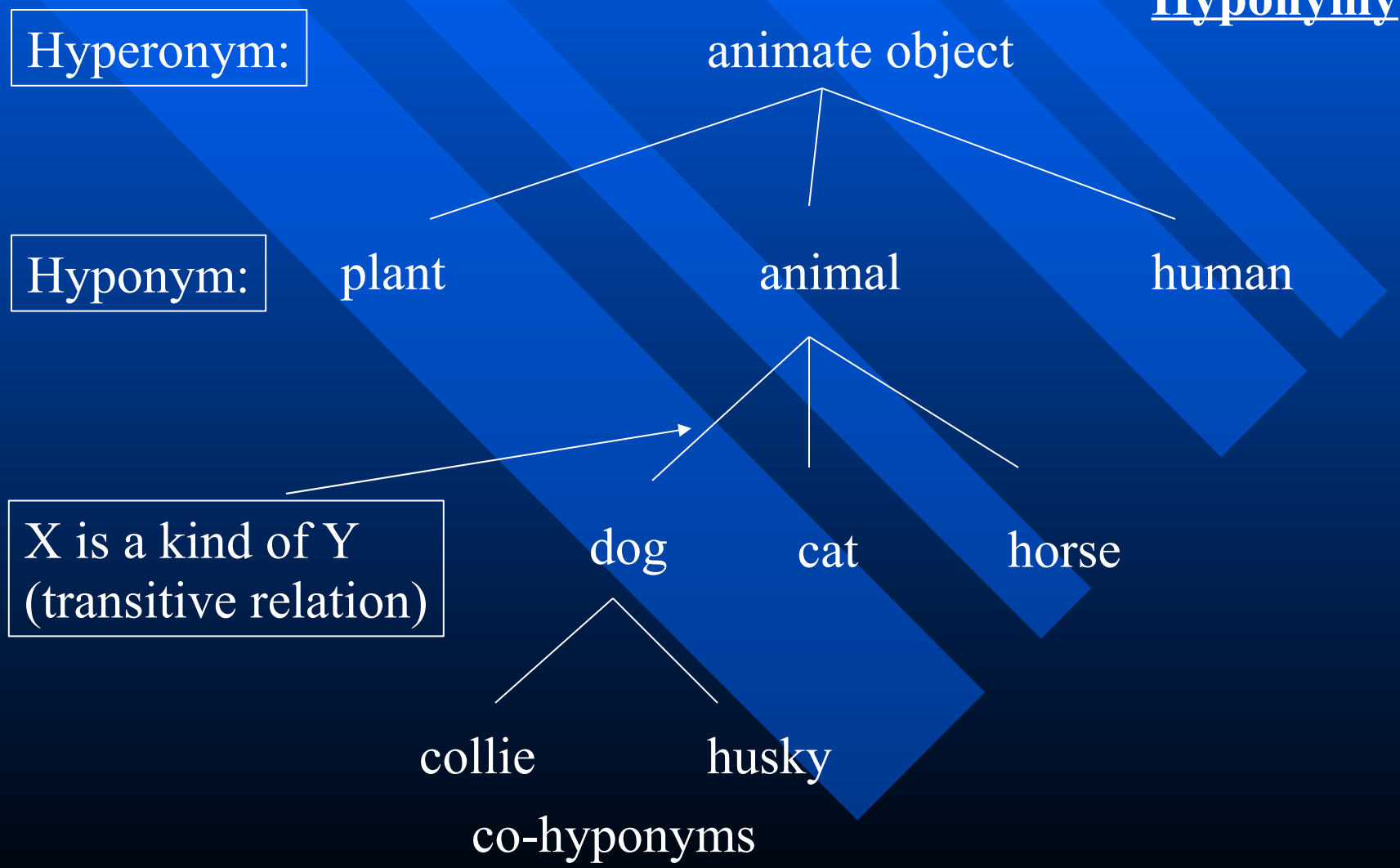
Opposition: two forms have opposite meaning
--> there are many relations which show oppositeness

5. ***Converses:*** two expressions are converses of each other if and only if they express the same relation with reversed roles

Examples:
above (x,y)/ below (y,x)
entail (x,y) / follow from (y,x)

Word meaning (Chapter 3)

Hyponymy



Sentence Relations and Truth (Chapter 4)

Hypothesis:

The tools of logic can help us to represent sentence meaning

A statement is true, if it is in correspondence with the facts, i.e. if it is a **correct description of states and affairs in the world**

Logic and truth

Alfred Tarski 1902-1983

"To understand a sentence is to know under what conditions it is true"

'Snow is white' iff snow is white

Tarski

DW: possible alternatives:

To understand a sentence is to know **which experiences would confirm that sentence** and which would disconfirm it

Truth

As a first approximation, we can distinguish...

empirical (contingent) vs. analytic truth

e. Neil Armstrong was the first man on the moon.
f. This corpse is dead.

truth values and truth conditions

A sentence can be true or false (binary distinction; tertium non datur).
This value is called ***truth value (TV)***

a.	*The pope is unmarried*	*T (necessarily)*
b.	*Triangles are two-dimensional.*	*T (necessarily)*

Same truth values but different truth conditions (TC)

The truth conditions of a sentence are the conditions that must hold such that the sentence is in accordance with the facts; i.e. TCs describe the states of affairs that would have to obtain in reality for the sentence to be true.

Some simple operators

Negation

Your car has been stolen
Your car has **not** been stolen

'**not**' is behaves like '¬'

p	**¬p**
T	**F**
F	**T**

Propositional logic
Truth tables

		p	
		T	F
q	T	x	y
	F	w	z

Some configurations are prominent in propositional logic

(all values are binary; T/F)

Some simple operators

Conjoining/coordinating

c. The house is on fire (p)
d. The firebrigade is on the way (q)
e. The house is on fire **and** the fire brigade is on the way
f. The fire brigade is on the way and the house is on fire
(c & d are truth-conditionally equivalent)

'**and**' is (similar to) '**&**' [or ∧]

p	q	p&q
T	**T**	**T**
T	**F**	**F**
F	**T**	**F**
F	**F**	**F**

Some simple operators

Inclusive disjunction

c. I am going to have a steak tonite (p)
d. I am going to have a salad tonite (q)
e. I am going to have a steak tonite **or** I am going to have a salad tonite
f. I am going to have a steak or a salad tonite
g. But: I am **either** going to have a steak **or** a salad tonite (exclusive)

‘**or**’ is (similar to) ‘∨’ (i.e. inclusive or)

p	q	p∨q
T	**T**	**T**
T	**F**	**T**
F	**T**	**T**
F	**F**	**F**

Some simple operators

Exclusive disjunction

c. I am going to watch soccer tonite (p)
d. I am going to watch a movie tonite (q)

‘**or**’ is (similar to) ‘$\vee_e$’ (exclusive or)

p	q	$p \vee_e q$
T	**T**	**F**
T	**F**	**T**
F	**T**	**T**
F	**F**	**F**

Some simple operators

Material implication

c. If it rains, I am going to the movies (p)
d. It's raining (p)
e. I am going to the movies (q)

'**If…then'** is (similar to) '→'

p	q	p → q
T	**T**	**T**
T	**F**	**F**
F	**T**	**T**
F	**F**	**T**

(this seems irritating, but don't forget these are logical operators, not descriptions of English terms:

if p is false, the claim p → q simply cannot be invalidated; so we treat it as T

By definition, material implication '→ ' produces a value of *false* if and only if the first operand is true and the second operand is false.

more on material implication

$p \rightarrow q$

p is a **sufficient condition** for q
p is **not** a **necessary condition** for q

Example:
If it rains (p), I get wet (q)

more on material implication

Counterfactuals

c. If wishes were money (p), we would all be rich (q)

p	q	p → q
T	**T**	**T**
T	**F**	**F**
F	**T**	**T**
F	**F**	**T**

The truth-conditional relation misses our intuitions about the sense relations here, but that should not bother us too much.

more on material implication

Biconditionals

c. If wishes were money (p), we would all be rich (q)

p	q	p ≡ q
T	**T**	**T**
T	**F**	**F**
F	**T**	**F**
F	**F**	**T**

[or $p \leftrightarrow q$]

p and q must have the same truth value

Entailment

a. Someone killed Kurt Cobain (p)
b. Kurt Cobain is dead (q)

p		**q**
T	→	**T**
F	→	**T or F**
F	←	**F**
T or F	←	**T**

Entailment defined by truth:

A sentence p entails a sentence q iff the **truth of p guarantees the truth of q** & and the **falsity of q guarantees the falsity of p**

Paraphrases

Paraphrase can be defined as mutual entailment relations

(p) The Etruscans built this tomb
(q) This tomb was built by Etruscans

p entail q and q entails p ($p \equiv q \mid p \leftrightarrow q$)

Presupposition:
Some examples

- *The present king of france is bald.*
  - Presupposition:There exist an individual who is present king of France
- *Do you want to do it again?*
  - Presupposition: You have done it already, at least once.
- *My wife is pregnant.*
  - Presupposition: The speaker has a wife.

Presupposition

Presupposition as a truth relation:

p		q	
T	→	T	
F	→	T	
T or F	←	T	
?(T or F)	←	F	truth value gap

Presupposition triggers

Lexical triggers:

factive verbs: *realize*, *notice*, *know*, *regret*, *forget*, ...

Example:
p: I ***regret*** *eating your sandwich|that I have eaten your sandwich*
q: I have eaten your sandwich (presupposition)

These verbs (and other like them) presuppose the truth of their objects

Introducing Pragmatics

2 central topics left:

Gricean Inference

Listeners participate actively in the **construction of meaning** – in particular by **drawing inferences** to arrive at an satisfactory assessment of (the most likely) **speaker meaning**);
How can these inferences be described?

Speech Act Theory

Linguistic exchange can be described from a **theory of acts|action perspective** (Handlungstheorie).
The guiding question is something like: "What is it that people do when they utter a sequence of sounds?"

Tasks for a hearer

- Fill in deictic expressions
- Fix the reference of nominals
- Access background knowledge
- **Make inferences**

Guiding hypothesis: The economy principle

It is a characteristic of natural language use that speakers calculate how much information their hearers need to make successful references.

Or more generally, **how much information** their hearers need to **reconstruct the situation** described by the utterance and the **communicative intention** of the speaker.

Guiding question

How exactly can we communicate more than what is actually said?

Example:
A: Care for some ice-cream?
B: I‘m on a diet.

Obviously we can, given an utterance, often derive a number of inferences from it. But how does this work? Why do me make some inferences (quite naturally and automatically) and not others?

Bridging inferences:
The role of background knowledge

i. I looked into the room. **The ceiling** was very high.
ii. John went walking out at noon. **The park** was beautiful.

v. He picked up the key and unlocked the door.

Bridging inferences

I left early (p). I had a train to catch (q).

Inference:
p *because* of q

Did you give Mary the money? – I‘m waiting for her now?

Inference:
S2 did not give the money to Mary

How come we make these inferences so naturally and automatically? Nothing in the logic of these utterances seems to license them.

Herbert Paul Grice

H. P. Grice 1913 - 1988

- important English philosopher of language and logic
- founder of modern pragmatics
- distinguished natural from non-natural meaning
- **sentence meaning** vs. **speaker‘s meaning**
- Grice‘s concept of speaker‘s meaning is a refinement of the idea that communication is a matter of intentionally affecting another person‘s mental|psychological state

Cooperative Principle

Grice proposed an approach to the speaker‘s and hearer‘s cooperative use of inferences (outcomes of some reasoning)

The predictability of inference formation can be explained by postulating a **coopperative principle**.

S and H seem to assume a certain set of generally accepted maxims; these assumptions are exploited in communication.

Cooperative principle (cont.)

Cooperative Principle:

"Make your contribution such as required, at the stage at which it occurs, by the accepted purpose or direction of the talk exchange in which you are engaged"

Co-operative Principle (cont.)

Now, the great thing of the account is that is provides an explanation (or a first indication) as to how we derive inferences.

The hearer (H) always assumes that, contrary to appearance of the utterance (U), the principles are nevertheless being adhered to at some deeper level

Maxims of conversation

I. Maxim of Quality

I. Try to make your contribution one that is true, i.e.

I. Do not say what you believe is false

II. Do not say for which you lack adequate evidence

III. Maxim of Quantity

I. Make your contribution as informative as is required for the current purposes of the exchange (i.e. not more or less)

V. Maxim of Relevance

I. Make your contribution relevant

VII. Maxim of Manner

I. Be perspicuous; and specifically:

I. Avoid ambiguity

II. Avoid obscurity

III. Be brief

IV. Be orderly

Maxim of Quality

try to make your contribution one that is true

(i) John has a PhD in analytical philosophy (p)

+> I believe p and I have adequate evidence of p

(ii) ?? John has a PhD in analytic philosophy, but I don‘t believe it

(cf. Moore‘s Paradox)

Maxim of Quantity

say as much as required

Harry

(i) Harry has 12 children

This conveys that Harry has not more than 12 children, although it is logically compatible with (ii)

(ii) Harry has 20 children

Maxim of Relevance
make your contributions relevant

(i) Pass the salt
+> pass the salt now

(if possible imperative will be interpreted as relevant to the present interaction)

A: Can you tell me the time
B: Well, the milkman has just come

Maxim of Manner

be brief, orderly - avoid obscurity, ambiguity

(i) Open the door

(ib) ?Walk up the door, turn the door handle clockwise as far as it will go, and then pull gently towards you

(ii) The lone ranger rode into the sunset and jumped onto his horse.

Co-operative Principle (cont.)

So, what exactly is this?

- A stylistic advice?
- An agreement in a social community?
- A metaphoric description of how our cognitive system that governs communication operates?
- Something even more general than this, i.e. could it be a characterization of how our mind interprets actions?
- ...

Co-operative Principle (cont.)

These maxims specify what participants (AGENTS) have to do to converse in a maximally efficient, rational, co-operative way: they should speak sincerely, relevantly and clearly, while providing sufficient information

Co-operative Principle (cont.)

A: Where‘s Bill?
B: There‘s a yellow Porsche in front of Sue‘s house.

B‘s contribution –taken literally- fails to answer A‘s question!
Seems to violate maxims of of quantity and relevance (at least)
But A is likely to be satisfied with B‘s answer.
A assumes that B is co-operative, so he begins searching for possible connections between the location of Bill and a yellow Porsche ...

Co-operative Principle (cont.)

A: Where‘s Bill?
B: There‘s a yellow Porsche in front of Sue‘s house.

...thus A arrive at the suggestion (which B effectively conveys) that, if Bill has a yellow Porsche, he may be at Sue‘s house

So, inferences arise to preserve the assumption of co-ooperation

Proposed general pattern for drawing inferences

(i) S has said that p

(ii) There is no reason to think S is not observing the cooperative principle

(iii) In order for S to say that p and be indeed cooperative, S must think that q

(iv) S must know that it is mutual knowledge that q must be supposed if S is taken to be cooperative

(v) S has done nothing to stop me, the addressee, thinking that q

(vi) Therefore S intends me to think that q

Speech Acts
How to do things with words

Action, as a concept in philosophy, is what humans can *do*.

Philosophical **action theory** is concerned with conjectures about the processes causing intentional (wilful) human bodily movements of more or less complex kind.

A basic action theory typically **describes behaviour** as the result of an **interaction between an individual *agent* and a *situation***.

Speech Acts

How to do things with words

The **speech act** can be described as "in saying something, we *do* something"

Speech Acts

How to do things with words

John L. Austin
1911-1960

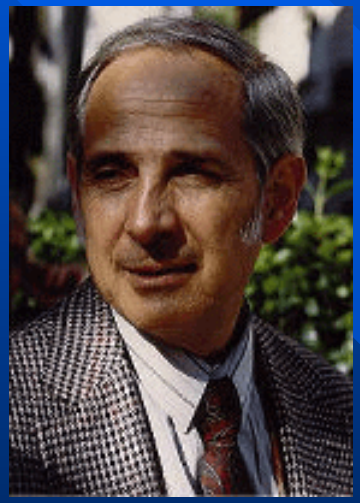
-another important British philosopher.

-graduate of Oxford, he was a fellow of All Souls (1933–35) and Magdalen (1935–52) colleges before he became White's professor of moral philosophy (1952–60), also at Oxford.

- strongly influenced analytic philosophy, urging that the use of words be closely examined and holding that the distinctions of ordinary language are more subtle than is usually realized.

Speech Acts

How to do things with words



John R. Searle
1933-

- Mills Professor of Philosophy at the University of California, Berkeley

- noted for contributions to the philosophy of language, philosophy of mind and consciousness, on the characteristics of socially constructed versus physical realities, and on practical reason.

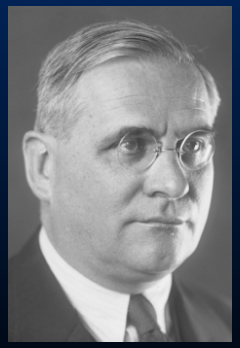
- was awarded the Jean Nicod Prize in 2000.

Traditional assumptions in Philosophy of Language

I. Basic sentence type in language is the declarative (expresses statements or assertions)
II. The principle use of language is to describe states of affairs (by using statements)
III. The meaning of utterances can be described in terms of their truth or falsity

---

Logical positivism: Vienna Circle (1922-1933):
Goal: Unified science
Two main features
I. **experience** is the only source of knowledge
II **logical analysis** performed with the help of symbolic logic is the preferred method for solving philosophical problems



Moritz Schlick
1888-1936

Austin‘s opposition

There are declaratives that cannot be evaluated on the basis of truth and falsity

- I promise to take a taxi home
- I bet you five pounds
- I declare this meeting open
- I warn you that legal action will ensue
- I name this ship *The Flying Dutchman*

Performative Utterances

Q: So, are all of these sentences meaningless?
A: No, it is just not useful to ask whether they are true or not.

But if so: **How should their meanings be described**?

Austin claimed that these sentences were in themselves a kind of action (promises, warnings, threats,...)

Performative utterances are speech acts which perform the action the sentence describes.

Explicit Performative Utterances

i. I (hereby) request that you leave my property

PRN 1st SG (*hereby*) $\text{Verb}_{\text{PERFORM}}$ *that* S

present
simple
indicative
active

Utterance of this type express most directly the intended communicative function.
They count as actions of the associated type

Speech Acts
Felicity conditions

A performative can be felicitous or infelicitous, i.e. it can work ... or not

There are social conventions governing the felicitous conditions of a speech act.

Speech Acts
Felicity conditions

I. There must exist an accepted conventional procedure having a certain conventional effect, the procedure to include the uttering of certain words by certain persons in certain circumstances...

III. The particular persons and circumstances must be appropriate for the invocation of the particular procedure invoked...

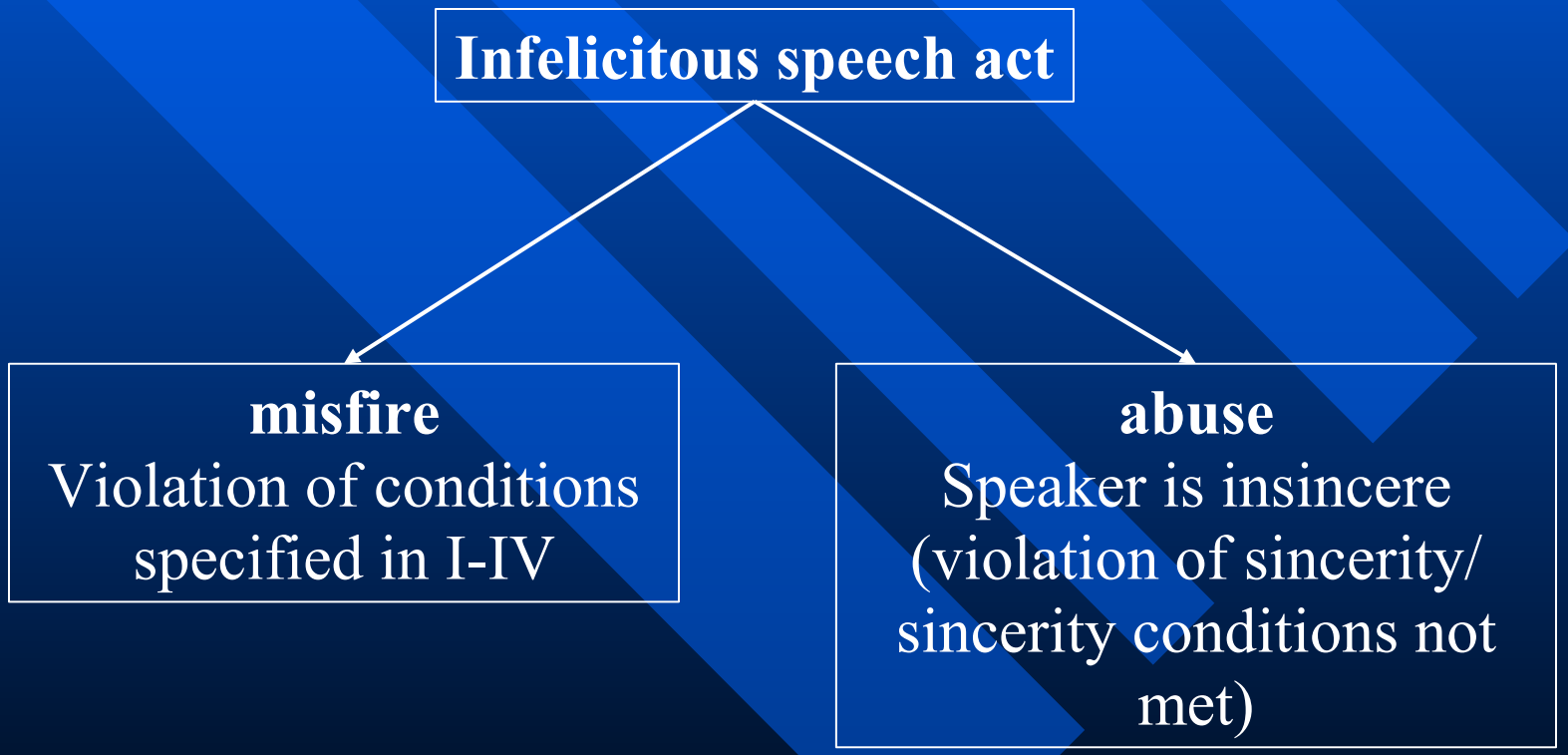
Speech Acts
Felicity conditions

I. The procedure must be executed by all participants correctly...

III. ...and completely...

Austin then added **sincerity conditions** (=sets of requisite thoughts, feelings and intentions) and distinguished two kinds of **infelicitous speech acts**: speech acts can **misfire** and the can be **abused**

Speech Acts
Felicity conditions



Speech Acts
How to do things with words

When saying something, one is simultaneously doing something…but what?.

I. Utterance Act (LA)
LA is performed in voicing words and sentences;

II. Propositional act (PA)
PA is carried out by referring to entities and predicating states and actions.

III. Illocutionary Act (IA)
IA is the interpersonal act performed in speaking .

IV. Perlocutionary Act
The intended effect on the addressee is a 'perlocutionary act'.

Speech Acts
Searle‘s classification

There is a myriad of (language particular) speech acts, but maybe these can be collapsed into a small number of coherent classes.

1. **Representatives**, which commit S to the truth of the expressed proposition. [**asserting, concluding**]
2. **Directives**, which are attemps by S to get H to do something [**questioning, requesting**]
3. **Commissives**, which commit S to some future course of action [**promising, threatening**]
3. **Expressives**, which express a psychological state [**thanking, apologising**]
4. **Declarations**, which effect immediate changes in the institutional state of affairs and which tend to rely on elaborate extralinguistic institutions [**excommunicating, naming**]

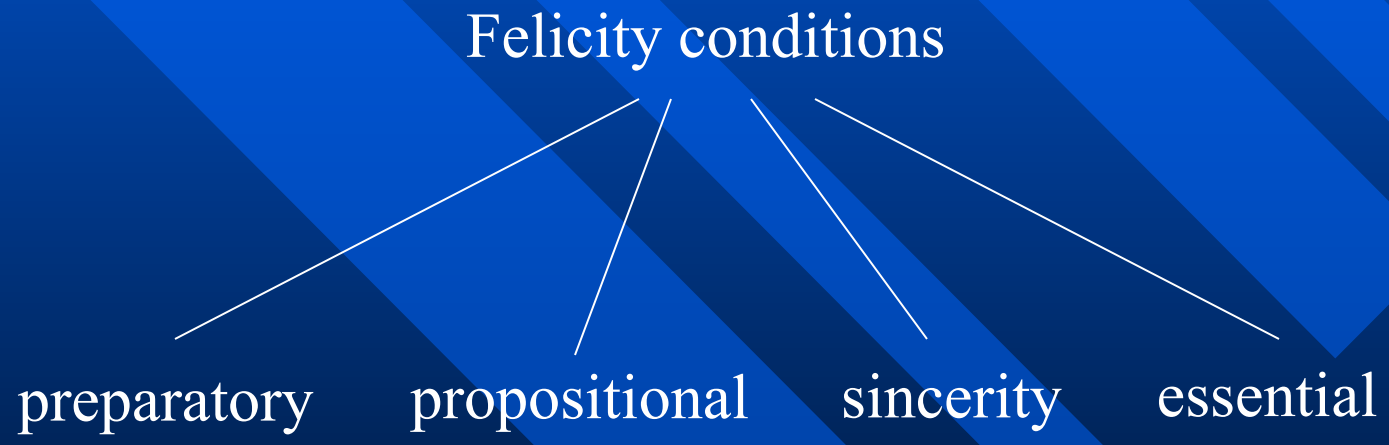
Speech Acts
Searle‘s classification

But how did he come up with this classification?

Three criteria:

1. **Illocutionary point**
   incl. **direction of fit** (words - world)
2. **Psychological state of S**
3. **Content of the act**

Speech Acts
Felicity conditions revisited



Speech Acts
An example: Conditions for promising

"When I promise to mow your lawn, the preparatory conditions are that you want me to mow your lawn and that I believe that this is the case and that neither of us believes that I would in any case mow your lawn as part of the normal course of events; the propositional conditions are that my utterance 'I promise to mow your lawn' predicates the right sort of act on my part; the sincerity condition is that I truly do intend to mow your lawn; and the essential condition is that my utterance *counts as* an undertaking on my part to perform this action."

Barry (2003)

Speech Acts

An example: Conditions for promising

Where A = future action; P = proposition expressed in the speech act, e = linguistic expression

Preparatory 1: H would prefer S's doing A to his not doing A **&** S believes H would prefer S's doing A to his not doing A

Preparatory 2: It is not obvious to both S and H that S will do A in the normal course of events

Propositional: In expressing that P, S predicates a future act A of S

Sincerity: S intends to do A

Essential: The utterance e counts as an undertaking to do A

Speech Acts

An example: Conditions for questioning

Where A = future action; P = proposition expressed in the speech act

Preparatory 1: not	S does not know the answer, i.e. for a yes/no-question, does know whether P is true or false; for an Wh-question, does not know the missing information
Preparatory 2:	It is not obvious to both S and H that H will provide the information at that time without being asked
Propositional:	no constraints -> any proposition
Sincerity:	S wants this information
Essential:	The act counts as an attempt to elicit this information from H

Speech Acts:
direct vs. indirect speech acts (ISA)

Utterance	direct act	indirect act
Would you mind passing me the ashtray?	question	request
Why don‘t you finish you drink and leave?	questions	request
I must ask you to leave my house	statement	request
Leave me and I‘ll jump in the river	order + statement	threat
	(secondary)	(primary)

Speech Acts
How to interpret ISAs

Conditions for requesting

Preparatory condition:	H is able to perform A
Sincerity condition:	S wants H to do A
Propositional condition:	S predicates a future act A of H
Essential condition:	Counts as an attempt by S to get H to do A

Now, one way of performing an indirect request involves asking if thepreparatory condition obtains.
--> Can you open the window (asking for H ability to do A)

Another possibility is stating the sincerity condition:
--> I wish you would open the window

Or you question the propositional content condition:
--> Will you open the window (please)?

That‘s it.
Thanks for your attention.

Best of luck for the final exam.

Word meaning (Chapter 3)

Meronymy