

Universal grammar

1. a set of principles, a universal template, that transcends the peculiarities of any individual language
2. Chomskyan hypothesis
3. A much older idea (as Chomsky himself has emphasize) going back at least to thinkers like Humboldt and perhaps Descartes
4. Perhaps even older, extending back to a more Medieval concept of grammar which viewed logic as a kind of universal grammar.

Leibniz's idea of a *characteristica universalis* or ideal language, which would truth and inference crystal clear because of its formal properties.

Bierwisch's hypothesis

Semantic features do not differ from language to language, but are rather part of the general human capacity for language, forming a universal inventory **used in particular ways in individual languages.**

Bierwisch (1967) [in Bierwisch 1970]

Potential sources of universals

1. Logical concepts: and, or, not, if-then, all, some
2. Spatial relations: in, on, at, under/over, behind/in-front-of, go
3. Kinship terms: father, mother, sister, brother, husband, wife
4. Bodypart language: head, arm, leg, hand
5. BECOME, CAUSE
6. Complex concepts **decompose** into simpler ones:
kill = CAUSE (BECOME (NOT (ALIVE)))

Where is all this coming from?

A fluent speaker's mastery of his language exhibits itself in his ability to produce and understand the sentences of his language, **including indefinitely many that are wholly novel to him** (i.e. his ability to produce and understand *any* sentence of his language). The emphasis upon novel sentences is important. The most characteristic feature of language is its ability to make available an infinity of sentences from which the speaker can select appropriate and novel ones to use as the need arises. That is to say, what qualifies one as a fluent speaker is not the ability to imitate previously heard sentences but rather the ability to produce and understand sentences never before encountered.

The Structure of a Semantic Theory
Katz and Fodor (1964)

The projection problem

A **synchronic** description of a natural language seeks to determine what a fluent speaker knows about the structure of his language that enables him to use and understand its sentences. Since a fluent speaker is able to use and understand any sentence drawn from the *infinite* set of sentences of his language, and since, at any time, he has only encountered a *finite* set of sentences, it follows that the speaker's knowledge of his language takes the form of rules which **project** the finite set of sentences he has fortuitously encountered to the infinite set of sentences of the language. A description of the language which adequately represents the speaker's linguistic knowledge must, accordingly, state these rules. The problem of formulating these rules we shall refer to as **the projection problem**.

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Synchronic linguistic description

The synchronic linguistic description is what solves the projection problem.

What's the word *synchronic* doing in there? *Synchronic* and *Diachronic* description are the two kinds of linguistic description (according to Saussure). *Diachronic* means “through time”. So diachronic description is a description of the *history* of the language, usually taken to be the domain of historical linguistics.

The words *camera*, *chamber*, and *comrade* all descend from the same Latin root *camera* meaning a room under a vaulted ceiling, or just room. *camera* comes from *camera obscura*, (dark room), which is what the first pre-cameras were, then becoming boxes with lens for creating images, then becoming means for preserving those images on film. As for *comrade*,

camera, L. → camarada, Sp. (roomful of persons) → camarada (one person) → camarada (friend, companion)

The *com* in *comrade* is unrelated to the *com* in *companion*.

Synchronic vs. diachronic

The words *camera*, *chamber*, *comrade* are all diachronically related (derived from the same source).

But they have no synchronic relationship.

Word pairs like *free* and *freedom*, *anxious* and *anxiety* and *innocent* and *innocence* are synchronically related. Speakers today know about the connection between their meanings. Knowing this connection is part of being a competent speaker of the language.

Synchronic description: description of the systematic facts that competent speakers know about their language in order to produce and understand it.

What is semantics?

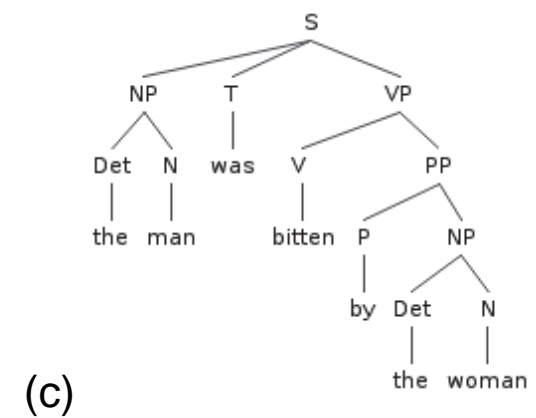
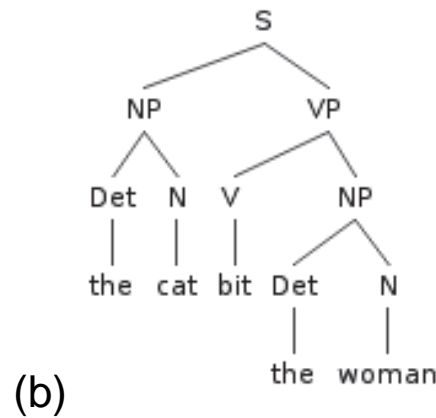
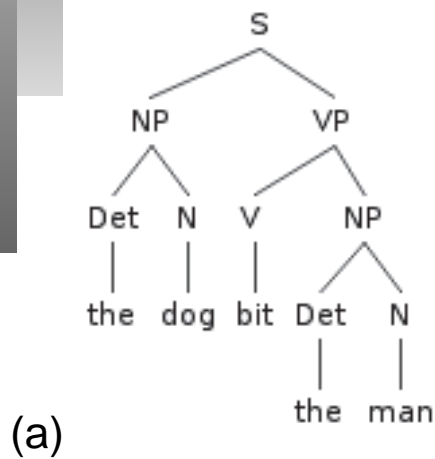
Grammar + Semantics = Synchronic Linguistic Description

“A semantic theory of a language completes the solution of the projection problem for the language.” (Fodor and Katz 1964)

Semantics takes over the understanding problem at the point where grammar leaves off.

Meaning

Understanding a sentence is grasping its meaning.



Examples (a) and (b) have exactly the same syntactic structure, but different meanings; examples (a) and (c) have different syntactic structure, but essentially the same meaning.

There is work to be done for semantics

In practice, we define the meaning of a linguistic form, wherever we can, in terms of some other science.

Bloomfield (1933:516)

Pretty much saying this: Semantics is not part of linguistics.

[Cautionary note]: The discussion is about whether defining linguistic forms is part of linguistics. [But semantics might be more than this... in fact it might include stuff Bloomfield is not thinking about here.]

Bierwisch on Bloomfield

A widespread view on this problem is that semantic properties are to be stated in terms of classes of objects or conditions of the surrounding universe, including abstract relations, general structures of the world, and so on. These properties are to a large extent the subject matter of different sciences, such as physics, biology, social sciences. [He cites Bloomfield]

Bloomfield's conclusion that we can give a full account of the meaning of natural languages only if we have a total knowledge of the universe represents a very extreme position in this matter.

But it shares with less extreme views the assumption that each distinction made in the meanings of a given language, i.e., each **semantic marker**, is connected with certain classes of objects, types of relations, or properties of the universe which the speakers of that language inhabit.

Bloomfield: The consequences

What one has to learn in the course of language acquisition are just these distinguished classes and relations, and the forms by means of which they are referred to. It is obvious that within this conception **the semantic markers** happen to be universal only because different speech communities live in the same universe, and only to the extent that their cultural environment is alike. To learn a new language then forces one to learn not only new lexical items, new syntactic and phonological rules, but also new semantic markers.

Bierwisch

Bierwisch contra Bloomfield

... the semantic markers in an adequate description of a natural language do not represent properties of the surrounding world in the broadest sense, but rather certain deep seated, innate properties of the human organism and the perceptual apparatus, properties which determine the way in which the universe is conceived, adapted, and worked on. (Bierwisch 1964)

A language of the mind

Conceptual structure (Jackendoff 1983)

Goals of semantic theory

[we should] “construct a metatheory which contains an enumeration of the semantic markers from which the theoretical vocabulary of each particular semantic theory is drawn” (K & F 1964)

“This does not mean, of course, that the dictionary of each given language must show exactly the same distinctions as that of any other language. It implies only that, if a distinction is made, this property can be characterized in a nontrivial way in terms of the universal set of semantic markers.” (Bierwisch 1967)

Summarizing Universalist hypothesis

1. Word meanings themselves are constructed out semantic primitives [semantic markers] that are universal
2. These form part of a language-independent **conceptual structure** (Jackendoff) out of which the meanings of the lexical items of all languages are assembled.
3. Bierwisch: "... if a distinction is made, this property can be characterized in a nontrivial way in terms of the universal set of semantic markers."
4. Fodor and Katz allow trivial ways: *hit, break, smash, shatter, slam, smack, bend, dent, crumple* (hitting and breaking)
5. Jackendoff allows non universal distinctions because there is an interface to a nonlinguistic conceptual component, which may not be entirely universal.

Universal vs. nonuniversal

	+ male	- male		+ male	- male
+ adult	stallion	mare	+ adult	rooster	hen
- adult	colt	filly	- adult	cockerel	pullet
			- adult	chick	

But what feature distinguishes *stallion* from *rooster* (and *bull* and *drake* and *stag/hart*)?

It can't be + horsey because we know that's not a universal semantic feature (Native Americans saw their first horses when Cortez's ship arrived.)

A mix of universal and nonuniversal features

We assume some set of distinguisher features associated with arbitrary perceptual/conceptual material, perhaps not even fully specified [essentially, we DO allow + horsey].

Although many speakers don't possess the expertise to distinguish beeches from elms, a competent speaker knows they're different. ["Meanings ain't in the head."] (?)

Semantemes

Atoms of linguistic theory

sound	phoneme
sentence	word
word	morpheme
Concept	semanteme

Utility of idea

The utility of the idea of universal semantics can only be shown by finding areas where universal concepts clearly do work.

Let's start by looking at English kinship:

We will represent kinship relations using the following basic notation: mother (M), father (F), sister (S), brother (B), son (s), daughter (d), wife, husband. Relations are always computed from the "Ego" (self) on outwards. We write these in sequence to pick out a particular relative.

MFSd mother's father's sister's daughter

B brother

Basic English kinship

brother	B
sister	S
mother	M
father	F
uncle	FB, FSh, MB, MSh
aunt	FS, FBw, MS, MBw
grandfather	FF, MF
great-grandfather	FFF, FMF, MFF, MMF
(first) cousin	MSs, MSd, MBs, MBd, FSs, FSd, FBs, FBd

Features: first pass

1. Mother and father are both parents, female and male respectively.
2. Parents, grandparents, great grandparents, etc. are ancestors in various generations.

So we have three potential conceptual features:

PARENT, SEX , ANCESTOR, GENERATION

But the second observation suggests PARENT should be decomposed into

$$\text{parent} = \begin{bmatrix} \text{ANCESTOR} & \text{yes} \\ \text{GENERATION} & -1 \end{bmatrix}$$

Now this means grandparent would be:

$$\text{grandparent} = \begin{bmatrix} \text{ANCESTOR} & \text{yes} \\ \text{GENERATION} & -2 \end{bmatrix}$$

Redundant features

There's something a little funny about combining an ANCESTOR feature and a GENERATION feature, because after all, being an ancestor means being some member of a generation less than 0. This concept is REDUNDANT with GENERATION ; they overlap in content; and the basic concepts of our analysis should NOT be redundant with each other.

an improvement

One feature LINEAGE with two different values: DIRECT and COLLATERAL (?)

DIRECT

Those related to ego by DIRECT lineage either have ego as an ancestor (sons, daughters, grandchildren) or are ancestors of ego (parents, grandparents, greatgrandparents) or share ALL their ancestors with ego (syblings)

COLLATERAL

Those related to ego by COLLATERAL lineage are not related by direct lineage and yet share some subset of their ancestors with ego (cousins, aunts, uncles, great aunts, great uncles, and so on).

Analysis I

This gives us the following analysis of simple English terms, based on only 3 features, LINEAGE , GENERATION , and SEX .

mother

LINEAGE	DIRECT
SEX	FEMALE
GENERATION	-1

father

LINEAGE	DIRECT
SEX	MALE
GENERATION	-1

grandmother

LINEAGE	DIRECT
SEX	FEMALE
GENERATION	-2

grandfather

LINEAGE	DIRECT
SEX	MALE
GENERATION	-2

sister

LINEAGE	DIRECT
SEX	FEMALE
GENERATION	0

brother

LINEAGE	DIRECT
SEX	MALE
GENERATION	0

Analysis I

This gives us the following analysis of simple English terms, based on only 3 features, LINEAGE , GENERATION , and SEX .

aunt

LINEAGE	COLLATERAL
SEX	FEMALE
GENERATION	-1

uncle

LINEAGE	COLLATERAL
SEX	MALE
GENERATION	-1

cousin

LINEAGE	COLLATERAL
SEX	
GENERATION	0

References

- Bierwisch, M. 1967. Some semantic universals of german adjectives. *Foundations of language* 3(1):1–36.
- Bierwisch, M. 1970. *Progress in linguistics: a collection of papers*. de Gruyter.
- Bloomfield, Leonard. 1933. *Language*. New York: Holt, Rinehart and Winston.
- Jackendoff, Ray S. 1983. *Semantics and Cognition*. Cambridge, MA: The MIT Press.