

## Universal Grammar 1

"evidence":

1. crosslinguistic investigation of properties of languages
2. evidence from language acquisition
3. general cognitive abilities

1. Properties can be reflected in

- a.) structural universals
- b.) functional universals

structural universals involve linguistic levels:

- phonological level
- syntactic level
- semantic level

functional universals are permitted by UG but may not be realized (cf. phoneme inventory of a given language)

## Universal Grammar 2

2. Rapid and uniform acquisition of **all** children without instruction

- a.) IF a linguistic property of an individual speaker is a property in all known languages and
  - b.) IF the property is not acquired as imitation of input data
- evidence that the property comes from specific feature of UG

**UG: the study of the common grammatical properties shared by all natural languages and of the parameters of variation between the languages**

Common grammatical properties: examples

Thematic roles: e.g. AGENT, INSTRUMENT, found in all languages

= reflects language-independent categorization schemes

- language-independent categories are mapped into specific syntactic positions (e.g. AGENT → subject position)
- principle of UG and the mapping are innate

## Universal Grammar 3

3. linguistic knowledge (= speaker's competence) interacts with processes of perception, memory

Perception: object recognition parallel to lexical acquisition

Salient boundaries lead to nominal items (N, NP)

Salient similarities lead to categorization (synonyms, hyponyms etc.)

Salient proximities lead to spatial items (P, ADV, CONJ)

Memory enables serial processing (e.g. before-after)

salient cause-effect relations lead to verbal items (V, VP) and syntax

use of language/linguistic processing is a manipulation of symbols

Symbols can be identified by their form and function

Categories of form: N, V, P, A, ADV, CONJ

= word classes, parts-of-speech

Categories of function: S, O, V, Adverbials

## Forms and functions 1

function of constituents: difference in meaning

*The cat ate the rat/ The rat ate the cat*

- subject: performs action, is agent, what the sentence is about

- predicate: what subject is engaged in doing,

→ predicate is anything except subject

→ operations of finding subjects: simple, formal

subjects not always "do" something

*I dislike the idea. Miriam stood aside.*

can be meaningless: *It was hot, It is raining*

*There are ways of making you talk.*

→ **non-referential it** and **existential there**: fill subject slot

Non-semantic properties of subjects:

subjects: predominantly nouns, groups with N: NPs

(*the stupid dog, the girl with the red hair, this committee...*)

## Forms and functions 2

subjects are:

- a.) NPs
- b.) (usually) the 1<sup>st</sup> NP in a clause
- c.) obligatory
- d.) determine forms of verbs (agreement)
- e.) changes position in y/n questions (*Did the tall guy spill the drink?*)
- f.) identifiable by tag questions (use of pronouns)

: entities that undergo process denoted by verb: *He broke the teapot.*

- play patient role (= semantic test)

a.) are often NPs

b.) after V

c.) string relation to V; *like* requires DO NP

V requiring a DO:  $V_{trans}$  V not requiring a DO:  $V_{intrans}$

but: can be both (*Julie walked/the dog*)

d.) DO (active sentence) → subject (passive sentence)

DOs complete the meaning of the verb, are complements

→ complement: any element that is required by another element

## Conceptual and surface structure of complex clauses

**basic assumption**: complex sentences constructed out of simple ones

**but**: often assume form that is not possible as independent structure

cf. clause in subject function:

*That Mary hates music is obvious*

*Joan distracted the man to whom Mary was speaking*

**surface structure vs. conceptual structure**

→ conceptual structure may be more complex

complex surface structures: coordinated vs. subordinated (= embedded)

- **embedding** on phrase level:

*The man's brother's wife's sister is a chemist*

- **embedding** on clause level:

*John ruined the company which he inherited*

→ subclause is a constituent of main clause

- if in S or O function: complement clause

### Relative clauses and relative pronouns 1

**relatives/relative pronouns** = words used to express semantic linking of two clauses in a complex sentence

- linking differs from that of conjunctions
- relative pronouns replace constituent of clause 1 which is the antecedent referred to in clause 2

• types of relatives (relative pronouns): *who/whom/whose/which/that/as*

P + relative PRO: *for whom, to whom, at which...*

→ they introduce relative clauses

- *that*: only defining relative clauses
- *zero*: refers to Object of relative clause

X A<sub>1</sub> Y

→ X A<sub>1</sub> Rel Z W Y

Z A<sub>2</sub> W

### Relative clauses and relative pronouns 2

*Kofi sends his regards to all the people who live in Botswana*  
**people** is identified in relative clause → **defining relative clause**

*Kofi, who is from Africa himself, sends his regards*  
 adds general information → **non-defining relative clause**

Relative clauses as noun modifiers:

*John visits Mary who lives in France*

*John visited the person who/Zero Bill visited last year*

Relative clauses as clause modifier:

*John visited Mary, which was a good idea.*

Preposition + relative:

if antecedent has Preposition in relative clause

Written: *The boy to whom I spoke is my brother*

Spoken: *The boy who/that I spoke to is my brother*

### Relative clauses and relative pronouns 3

If antecedent is in possessive construction: construction occurs before relative pronoun

*The house the roof of which was damaged has been repaired*

Relative pronouns take over function of the antecedent

→ subject, object

*who*: for ANIM/HUM (= *he/she*) in subject function

*whom*: for ANIM/HUM (= *he/she*) in non-subject function

*which*: if antecedent is –ANIM

if whole clause is relative

*that*: for noun modification

• rearrangement rule for the shared NP in relative clauses

a.) *I think John hopes Harry believes Marge feels Sue knows the truth*

b.) *The truth is a disturbing one*

*truth*: most deeply embedded in a.)

→ fronted in *The truth which...*

### Relative clauses: Tree structure analysis

**Exercises:**

Please draw a tree structure after the following examples

(1) *Jerry, who was our tour guide, showed us the tree with the spider.*

English-German Translation Corpus:

(2) *The number of ethnic Germans who have arrived so far this year increased*

### Quantification in English

**Quantification**: a logic relationship to indicate the **amount** designated in linguistic items

types:

a.) absolute quantification: cardinal numbers and *both*

b.) relative quantification: N has quantity but is numerically undefined

• expresses subjective evaluation of speaker about amount of N

little, many, few, a lot of (all DET)

→ quantity and number are bases for **determination**

• DET like *all, every, each, either, neither, some, any*

• quantifying DET: concrete/abstract and mass/count are realized in N

*much/little* restricted to mass N (*little air*)

*many/few* restricted to count N (*many boxes*)

Relationships and distribution:

total (*all/every*)

partial (*little, some, much*)

sg. unit (*each/(n)either*)

pl. unit (*a few, many*)

1 unit (*one, another*)

2 units (*two, both*)

### Constraints in quantification

• countability constraints

\**many water*

vs. *much/a bit of water*

\**much/ a bit of car*

vs. *many cars*

but:

*a lot of cars*

vs. *a lot of water*

\**There was a book all over the floor*

*There was a copy of the New York Times all over the floor*

(Jackendoff 1995)

• distributional constraints

\**all many cars*

vs. *all the many cars*

\**any some books*

vs. *any two books*

• semantic constraints

*I bought some candy*

vs. \**I bought any candy*

\**I didn't buy any candy*

vs. *I didn't buy any candy*

### Verbal quantification

Internal structure of propositions can be quantified:  
**Aspectual classes** (Vendler 1967)

1. activity (*to run, to push a cart*)
2. accomplishment (*to run a mile, to draw a circle*)
3. achievement (*to win a race, to reach the summit*)
4. state (*to like somebody, to hate something*)

Classes define the **telicity or atelicity** of events

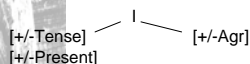
- telicity combines with quantity

atelic + quantified	telic	( <i>to draw a circle</i> )
atelic + unquantified	atelic	( <i>to drink beer</i> )
telic + quantified	telic	( <i>to splint trunks</i> )
telic + unquantified	atelic	( <i>to splint wood</i> )

### The inflectional node (I-node)

- How do verbs get their inflectional ending?  
 → implausible to assume that the mental lexicon stores inflected words (it would get too large)  
 thus: I-node (Inflection), immediately dominated by S
- two functions:

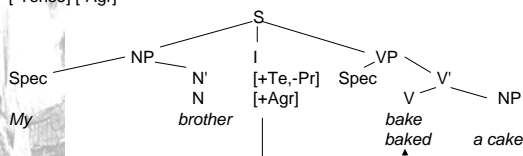
- a.) makes sure that V is supplied with tense
- b.) for agreement with Subject



- if [+Tense] it can be [+Present] or [-Present]

### I-node affix hopping

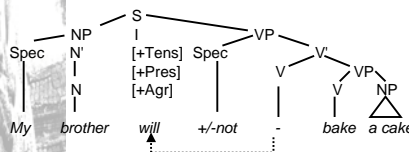
- in English: 3 possible combinations:  
 [+Tense, +Present] [+Agr]; [+Tense, -Present] [+Agr]  
 [-Tense] [-Agr]



- features Tense/Agr are lowered from I-node (affix hopping)
- But: cf. *She wanted her brother to bake a cake*

### Head movement: verb

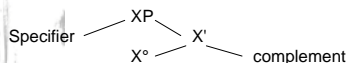
*My brother will bake a cake*  
*My brother will not bake a cake*  
*not*: occupies specifier node, therefore *will* is not part of this VP  
 → where to put modal auxiliaries?



- reasons for aux in the I-node:  
 a.) modals are always tensed,  
 b.) compatible with sentence adverbs like *perhaps*;  
 can come between modal and main verb

### X-bar structure 1

- part of generative syntax, regulates constituent structure
- determines structural representation
- phrases = projections of heads

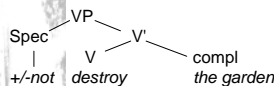


X°: head, with one maximal projection, forms intermediate projection X'  
 X': combines with another maximal projection Spec to form X'' or XP

- Nodes can be:
- lexical categories N, V, A, P
  - functional categories: Inflection, Complementizer
  - obligatory: Head
  - followed by: Complements
  - preceded by: Specifiers (*not, an, quite, so, much*)
- [<sub>PP</sub> *quite in agreement*] [<sub>AP</sub> *so fond of coffee*] [<sub>AdvP</sub> *much faster than me*]

### X-bar structure 2

- Spec: can be optional ("empty") i.e. it can be + or -not



→ all levels are projections of the Head

XP: maximal projection a.k.a. X'' (double-bar projection)

Head: zero-bar projection (a.k.a. lexical projection)

→ every phrase has 3 levels of structure: X'', X', X

- Adjuncts:
- 
- V' node is repeated
  - AdvP added (adjunction)
  - adjunct can be left or right of the Head

### X-bar structure: some typical Specifiers/Complements

Phrase Spec	example
NP	determiners <i>the exam, our car, many birds</i>
VP	negative elements <i>She [never eats porridge]</i>
AP	degree adverbs <i>how nice, too bad, as rich as</i>
PP	adverbs <i>right down the road, quite in order</i>
Phrase Comp	example
NP	PP <i>their specialization [in wines]</i>
	clause <i>their idea [that all is lost]</i>
	NP <i>a literature teacher</i>
VP	NP <i>She placed [an advertisement]</i>
	clause <i>They know [that the sun shines]</i>
	PP <i>Billy looked [at the picture]</i>
AP	PP <i>glad [about the new job]</i>
	clause <i>I'm eager [to work in Paris]</i>
PP	NP <i>under the bridge, behind the house</i>
	clause <i>uncertain about [what Sheila told me]</i>

### Passivization X-bar effects

NP in complement PP: can be passivized  
NP in adjunct PP cannot be passivized

(Examples adapted from Radford 1989:pp.233)

*John laughs at the clown*  
*John laughs at 10 o'clock*

*The clown was laughed at by John*  
*\*10 o'clock was laughed at by John*

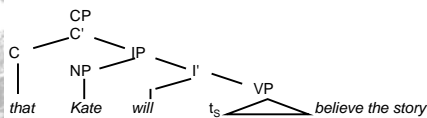
*Mary bought the book on the table*  
*Mary bought the book on Tuesday*

*The book on the table was bought by Mary*  
*\*The book on Tuesday was bought by Mary*

### Developments in X-bar syntax

Chomsky: principles and parameters approach (1986)

- extended to all syntactic categories
- sentence = extended projection of V supported with projections of inflectional morphemes
- S: dominated by projection of Complementizer

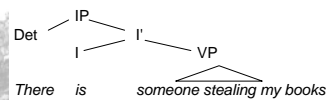


- C takes an IP as complement
- the IP is a projection of the Inflection (tense, agreement)

### Raising constructions

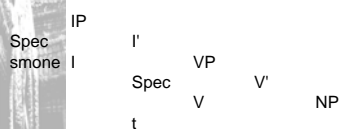
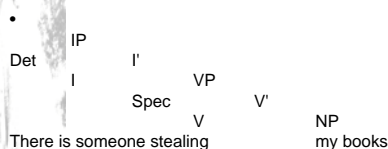
- assumption: subjects occupy Spec position in IP
- theory: subjects originate in Spec position of VP and are raised to Spec-IP (subject raising)

*There is someone stealing my books*  
*there: pleonastic, dummy*



*stealing*: head of VP  
*my books*: object, complement  
*someone*: subject, Spec

### Raising constructions 2



= subject to subject raising

### Government and binding: introduction

Sound + meaning: mediated by syntactic representations

**Modularization**: sets of concepts, conditions of occurrence are treated as subsystems of the grammar

- module binding theory: deals with compatible indexing (NPs as pronouns, anaphora etc.)
- module theta theory: distribution of semantic arguments and selectional restrictions
- module X-bar theory: constituent analysis
- module case theory

- G&B uses syntactic levels, phonological form (PF), logical form and postulates a lexicon

#### On binding theory:

- grammatical phenomena are sensitive to structural relationships:
- c-command (constituent command) = a node c-commands its sister node and any nodes dominated by its sister node

### C-command functions

**c-command is used for:**

- a.) anaphora binding
- b.) compatibility of negative particles with negative polarity items (NPI, *ever, anybody*)

*John doesn't like any newspapers*  
vs. \**John doesn't like no newspapers*  
\**The fact that John doesn't read concerns any newspapers*  
vs. *The fact [...] concerns no newspaper*

#### a.) Anaphora binding

anaphora: two nominal expressions have same referential value, called antecedents

pronouns: seen as variables = open until assigned a value:  
*Lili thinks she has got the flu*

**Principles of anaphora resolution:**

- a.) binding: *x thinks x has got the flu*
- b.) covaluation: *x thinks z has got the flu & z = Lucie*

### Anaphora binding and pronouns

→ Pronoun is assigned a value from discourse storage

- discourse storage: inventory of entities from context  
cf. *Lucie didn't show up. Lili thinks she has got the flu.*
- most likely value: most accessible discourse entity (e.g. topic of discourse)

equivalent or not?

*x thinks z has got the flu & z = x*  
cf. *Lili thinks she has got the flu and Sarah does too.*

*Lucie thought that Lili hurt her*  
*Lucie thought that Lili hurt herself*  
\**Lucie thought that herself hurt Lili*

restrictions on binding: underlie syntactic rules

bound anaphora: only possible when antecedent c-commands the anaphoric expression

### Theta-theory: implications on constraints

Arguments of 1/2/3-place-predicates: take roles

THEME/PATIENT: entity undergoing effect of activity    *John fell*  
AGENT/CAUSER: instigator of activity                    *Mary wrote the book*  
EXPERIENCER: entity has psychological states        *We intended to go*  
RECIPIENT/POSSESSOR: entity 1 has entity 2        *Fred got a new car*  
GOAL: entity towards something moves                *Let's go to Prague*

Constraints of semantic compatibility: cf. examples adapted from Radford

*Mary realized that John was ill*  
*The cat realized that John was ill*  
\**The goldfish realized that John was ill*  
\**The frying-pan realized that John was ill*  
\**Freedom realized that John was ill*

→ theta-roles

constrain the use of certain arguments, cf. EXPERIENCER

• roles are assigned by verb

→ verb theta-marks subjects and complements