



Functional Generative Description (FGD)

Syntactic layers

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System of layers in FGD



meaning

deep / underlying syntax
tectogrammar

surface syntax

morphematics

morphonology

expression

phonology/phonetics

System of layers in FGD (cont.)



sentence ... full representation on each layer of description

each layer ~ set of descriptions for all possible sentences

- finite set of elementary units
- finite set of operations and relations → set of complex units
- finite set of relations between sentence representations on a particular layer and its representations on adjacent layers

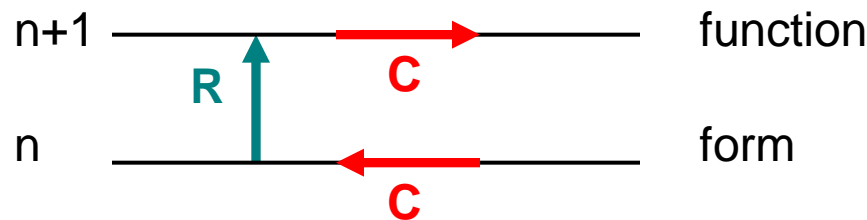


System of layers in FGD (cont.)

sentence ... full representation on each layer of description

each layer ~ set of descriptions for all possible sentences

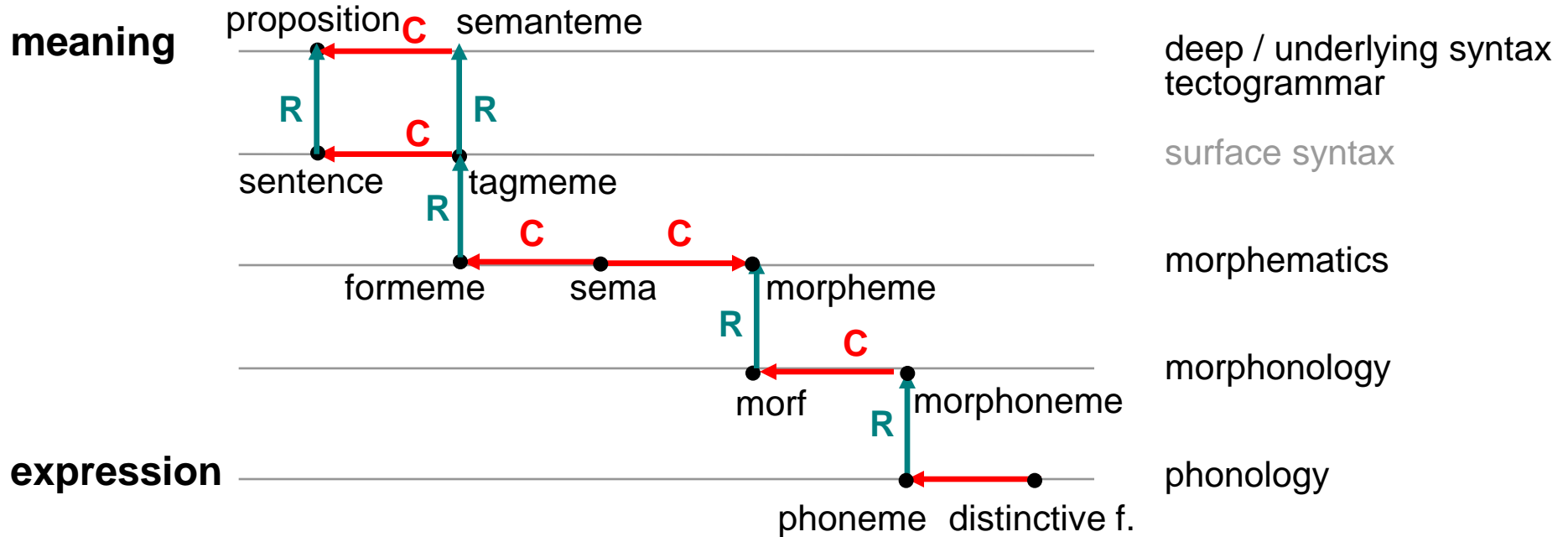
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type C relations (composition): elementary units constitute complex units
i.e., relations between units of the same layer

type R relations (representation): form-function relation
i.e., relation between adjacent layers

System of layers in FGD



Two layers of syntax in FGD



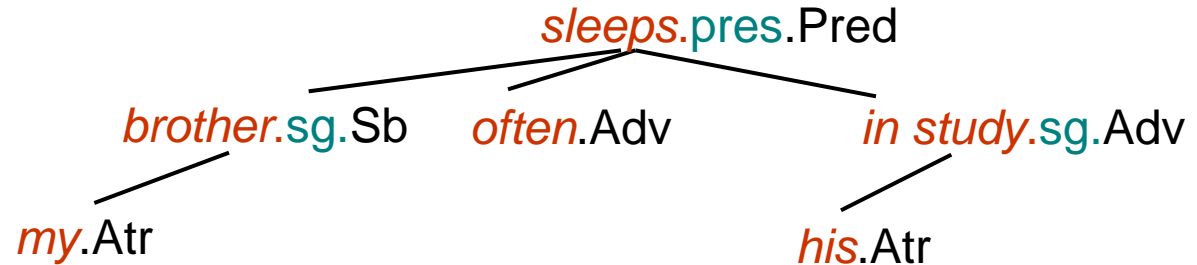
tree-based dependency structure

- nodes for tagmemes / sememes (complex symbols)
- edges labeled with a type of a respective syntactic relation

The layer of **surface syntax**

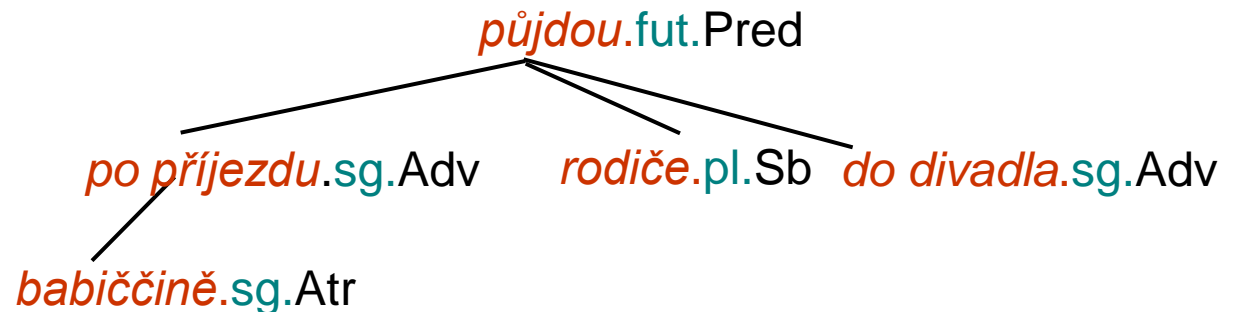


My brother often sleeps in his study.



Po babiččině příjezdu půjdou rodiče do divadla.

[After grandma's arrival the parents will go to the theatre.]



The layer of **surface syntax**



surface syntactic tree

- ~ nodes for formemes → **tagmemes** / sentence members
(cz school syntax: větné členy)
- ~ edges for syntactic relations

+

surface word order ... linear ordering of tree nodes

The layer of **surface syntax**



surface syntactic tree

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surface word order ... linear ordering of tree nodes

3 types of elementary units:

- lexical: units from a dictionary
- morphological: set of morphological features ~ **tags**
(a pair of) trousers ... sema - plural
- syntactic: subject, object, attribute, adverbial, complement,...

The layer of **deep syntax**



~ meaning of a sentence:

semantemes: lexical (autosemantic) words, their lexical and morphological features and mutual relations

terminology: deep / underlying / tectogrammatical representation (TR)

The layer of **deep syntax**



~ meaning of a sentence:

semantemes: lexical (autosemantic) words, their lexical and morphological features and mutual relations

terminology: deep / underlying / tectogrammatical representation (TR)

3 basic types of elementary units:

- lexical: units from a (tectogrammatical) dictionary
- morphological: **grammatemes**

meaning of individual morphological categories

(a pair of) trousers ... singular
denominating (*pojmenovávací*)

vs. *correlating* (*usouvztažňující*) categories

- syntactic: types of relation, **functors** and **subfunctors**
Actor, Patient, Addressee, ... local, temporal modifications ...



The layer of **deep syntax**

~ meaning of a sentence:

semantemes: lexical (autosemantic) words, their lexical and morphological features and mutual relations

terminology: deep / underlying / tectogrammatical representation (TR)

3 basic types of elementary units:

- lexical, grammatemes, functors

deep word order

- increasing communicative dynamism:
word order reflects "relative degree of importance in comparison with other expressions in the sentence [...]"
- topic focus articulation

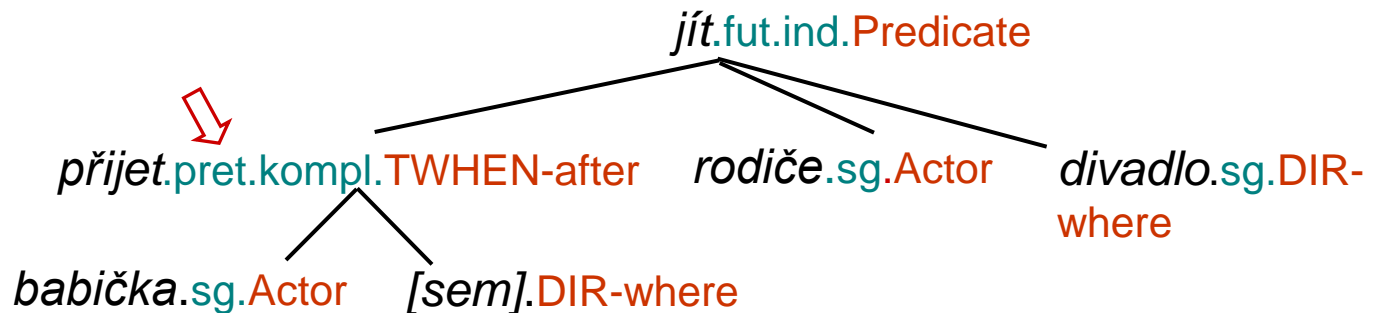
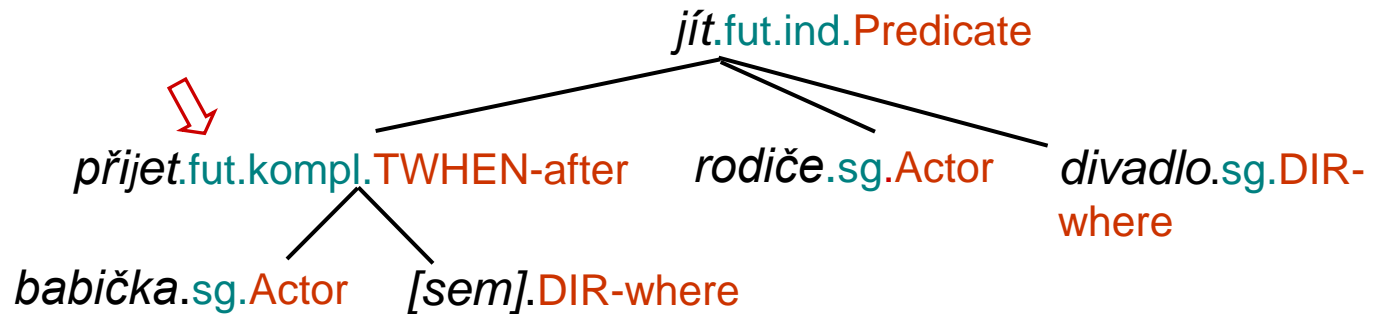
condition of ***projectivity*** !!!

The layer of deep syntax



Po babiččině příjezdu půjdou rodiče do divadla.

[After grandma's arrival the parents will go to the theatre.]



The layers of **deep** vs. **surface syntax**



- different sets of elementary units
 - 'morphological' lemma vs. tectogrammatical lemma
 - morphological categories vs. grammemes
 - surface sentence members vs. functors
- ⇒ different sets of complex units
 - **tagmeme** vs. **semanteme**

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tagmemes: only *autosemantic / lexical words* at TR

– **modal verbs**

Peter wants to attend the concert. [to attend + volitive]

Charles has to pass the exam. [to pass + debitive]

– **nominalization**

After grandma's arrival ... → [to arrive]

– **active / passive verbs** → [active form]

Tato krásná kniha byla vydána nakladatelstvím Albatros.

[This beautiful book was published by the Albatros publishing house.]

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tagmemes: only *autosemantic / lexical words* at TR
completeness of the representation

- (surface) ellipses are restored
- omitted surface subject, object, comparison ...

Czech: *Vidíš bratra? Vidím. Přichází.*

→ [Ty] vidíš bratra? [Já] vidím [ho]. [On] přichází [sem].

Russian: *Ты видел брата? Вижу [его]. Идём.*

Spanish: *¿Ves este tronco? [(Do) you see this log?]*

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⇒ different sets of complex units

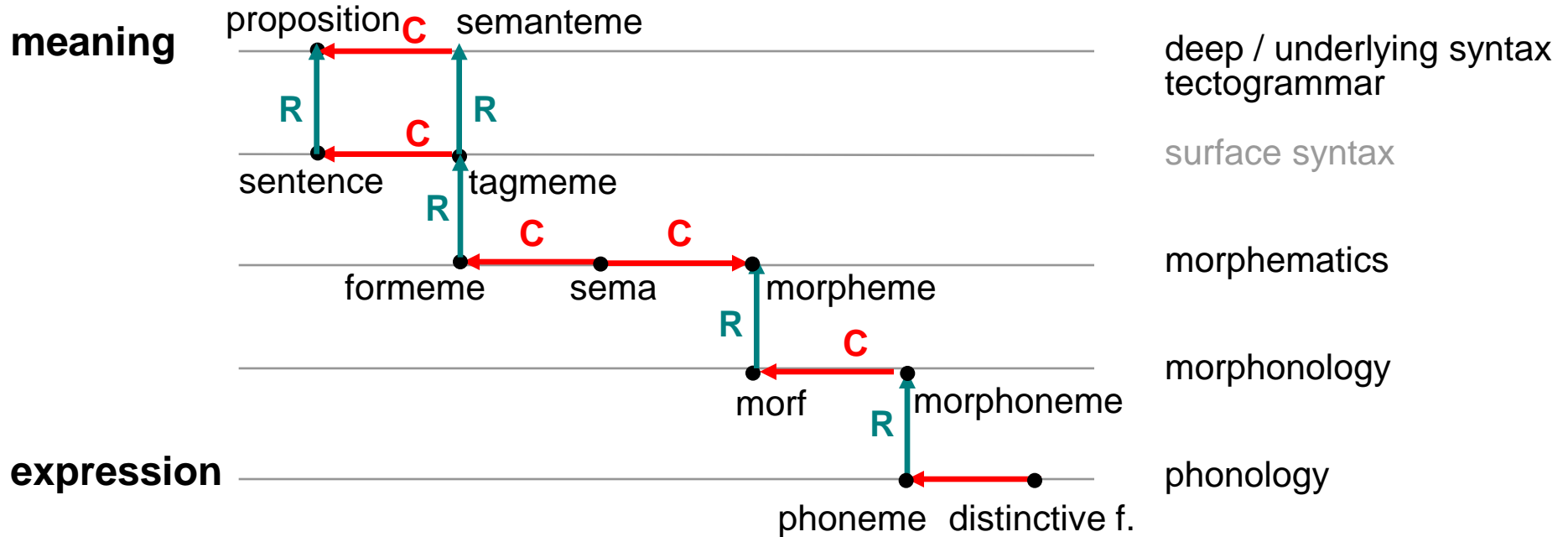
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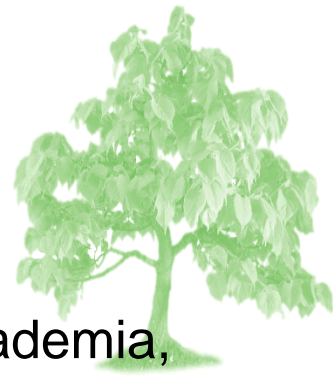
deep word order

- **projective** trees
- increasing **communicative dynamism**

System of layers in FGD



References



- Sgall, P. (1967) *Generativní popis jazyka a česká deklinace*. Academia, Praha
- Sgall, P., Hajičová, E., Panevová, J. (1986) *The Meaning of the Sentence in Its Semantic and Pragmatic Aspects*. Reidel, Dordrecht.
- Sgall, P. a kol. (1986) *Úvod do syntaxe a sémantiky*. Academia, Praha
- Hajičová, E., Panevová, J., Sgall, P. (2002) *Úvod do teoretické a počítačové lingvistiky*, sv. I. Karolinum, Praha.
- Petkevič, V. (1995) A New Formal Specification of Underlying Structure. *Theoretical Linguistics* Vol.21, No.1.