Gestalt Theory and Conceptual Semantics

100 Years of Gestalt Psychology

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Urpo Nikanne

Åbo Akademi University

Åbo Akademi

Conceptual Semantics: some background

- Noam Chomsky
  - 1970 **”Remarks on nominalizations”** (Jacobs, R. & Rosenbaum, P., eds., *Readings in English transformational grammar*. Waltham, MA: Ginn)

  -> Interpretative semantics.

  (The semantic interpretation is based on the surface structure – NOT on the deep structure as supposed in Generative Semantics.)

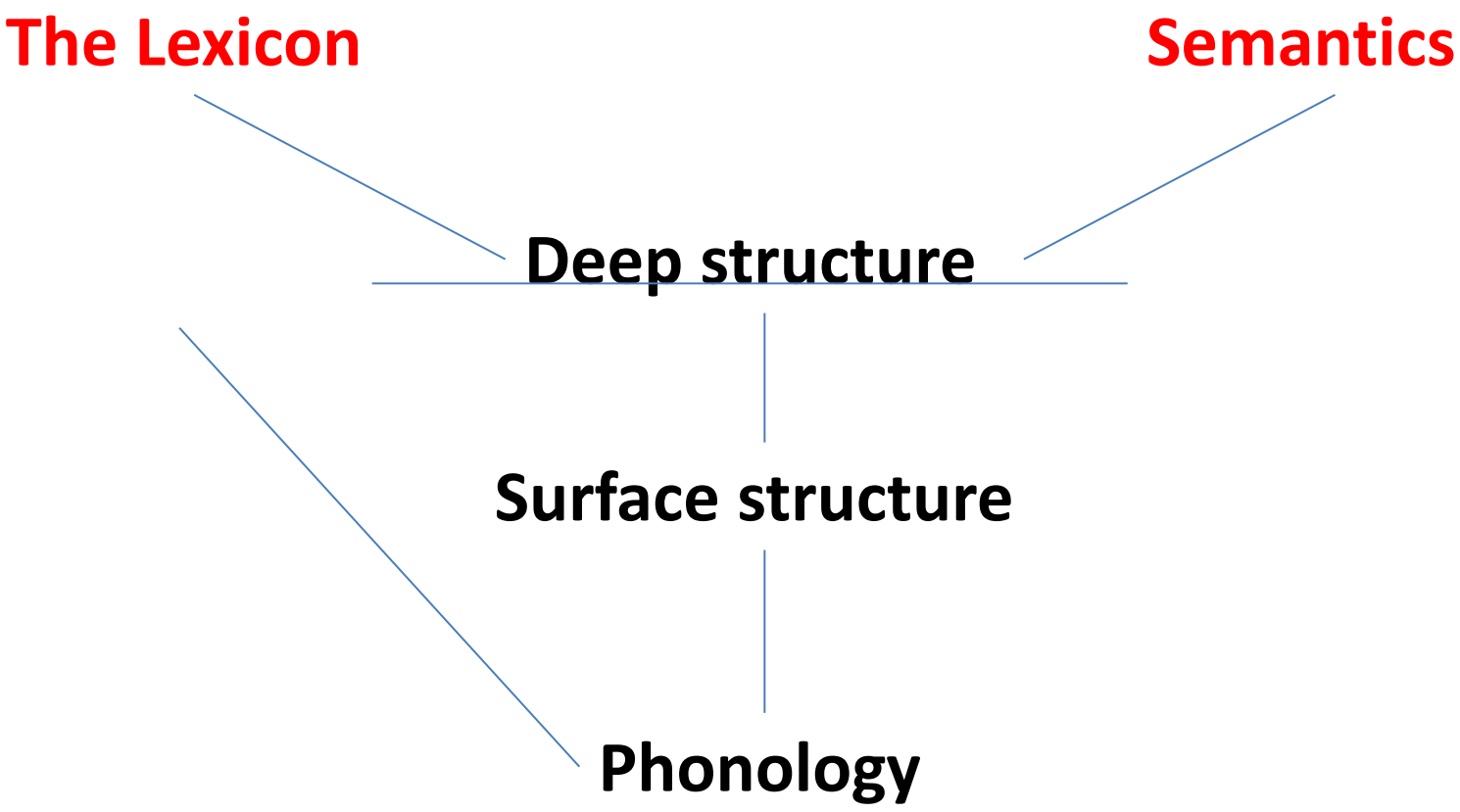
  -> Lexicalist hypothesis

  (Even derived lexical entries are in the lexicon – NOT derived in syntax as supposed in Generative Semantics.)

Conceptual Semantics: some background

- Ray Jackendoff
  - 1972 ***Semantic interpretation in generative grammar***. (MIT Press)
  - 1975 **"Toward an explanatory semantic representation"** (*Linguistic Inquiry* 7.1, 89-150)
  - 1983 ***Semantics and cognition*** (Cambridge, MA: MIT Press)
  - 1990 ***Semantic structures*** (Cambridge, MA: MIT Press)

Generative grammar 1957 -> Conceptual Semantics 1983



Interpretative semantics

- As the semantic interpretation is based on the surface structure, one needs to see the surface structure patterns as semantically significant.

→ As the surface structure was better understood, there was less need for the deep structure.

→ Constructions: complex linguistic structures with recognizable syntactic, morphological and lexical form can be interpreted as one whole.

Lexicalist hypothesis

- E.g. causative verbs in Finnish. Causative ending (t)tA:
  syö- 'eat' -> *syö-ttä-* -> *syö-tä-ttä-*
  naura - 'laugh' -> *naura-tta* -> *naura-tu-tta-*

  Syntactic derivation: The derived causative verbs are complex syntactic structures, e.g: [VP syö [VP ttA [VP ttA]]]

  Lexicalist hypothesis: The derived causative verbs are in the lexicon as lexical items. They are not derived in syntax.

→ The lexicalist hypothesis treats the derived words as wholes.

Representational modularity

Representation

- Each sentence is a combination of different kinds of information, phonological, syntactic, semantic, etc. These levels of different informaton are called representations.

Autonomous representation

- A representation is autonomous when it cannot be reduced to another level of representation.

Representational modularity (Jackendoff 1997)

- Each autonomous level of representation is based on formation principles of a separate module. Autonomous representational modules have their own primitives and principles of combination.

Methodological guidelines in conceptual semantics (Nikanne 2008, 2012)

a. Formal approach: *Formalize your statements.*

b. Analytical organization: *Keep the formation of formally independent sub-systems apart*.

c. Simple Formation of Modules: *Keep the formation of the sub-systems simple.*

d. Importance of Linking: *Study carefully the interaction between the modules*.

e. Regularities before Irregularities: *Try to find as general principles as possible*.

Micro-modularity: a tier based modular organization (cf. B Analytical organization)

Micro-modularity is a consequence of the methodological guidelines of conceptual semantics. Independent structures are formed in their own modules.

A sketch of the micro-modular organization of the Finnish grammar:

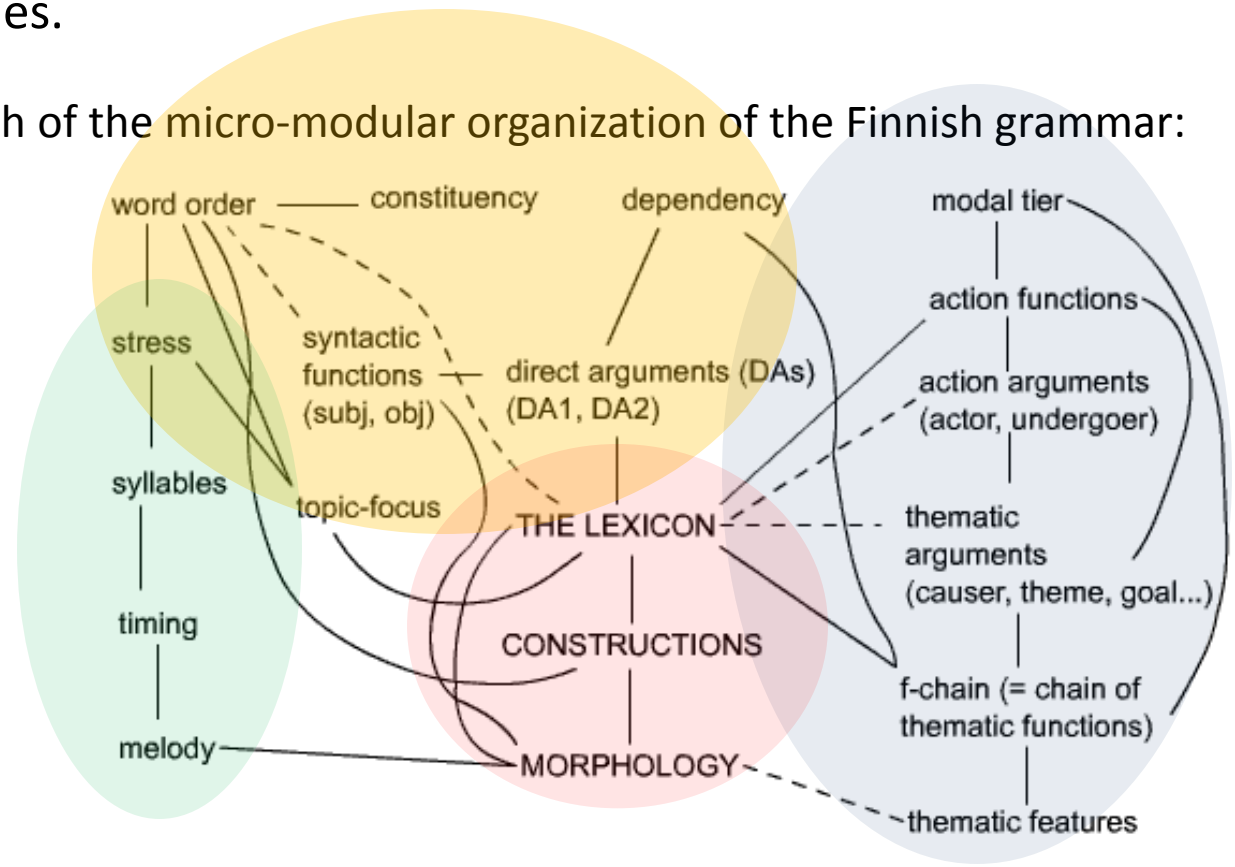


Figure 1. The relevant parts of the organization of the Finnish grammar.

Jackendoff 1983: Projected world

- According to Jackendoff (1983, chapter 2), language conveys information about the **projected world**, not the real world.

  -> The projected world is the world 'as we understand it'. The information of the real world must be processed by the human brain and follow the principles of the human mind in order to be observed and understood.

Law of similarity

Variation of proverbs

Kukas kissan hännän nostaa jos ei kissa itse

who-ql cat-gen tail-acc raise-3sg if not cat self

‘Who else would raise the cat’s tail if not the cat itself’

Refers to a person who praises him/herself.

Known all over Finland.

Kukas kissan hännän nostaa…
’Who would raise the cat’s tail if not the cat itself’
Variation within one municipality (Kalanti)

a. **Kukast kissa hännä nosta ete it nost.**
Kukas kissan hännän nostaa, ellei itse nosta.
Who-CL cat-GEN tail-ACC raise-3SG, if-not itself raise-NEGF
(Kalanti, A. Laaksonen, 1931)

b. **Kukast kissa hännä nosta jolle kis ite.**
Kukas kissan hännän nostaa, jollei kissa itse.
Who-CL cat-GEN tail-ACC raise-3SG, if-not cat itself.
(Kalanti, K. Suominen, 1931)

c. **Kukas kati hännä nosta ete ite.**
Kukas katin hännän nostaa ellei itse.
Who-CL cat-GEN tail-ACC raise-3SG, if-not itself.
(Kalanti, V. Tähtinen, 1931)

d. **Kukas kati hännän nosta, jos ei katt ite.**
Kukas katin hännän nostaa, jos ei katti itse.
Who-CL cat-GEN tail-ACC raise-3SG, if not cat itself.
(Kalanti, Em. Tamminen, 1931)

e. **Kukas koera hännä nosta jolle se sitä ite nost.**
Kukas koiran hännän nostaa, jollei se sitä itse nosta.
Who-CL dog-GEN tail-ACC raise-3SG, if-not cat itself.
Tarkoitta itseänsä kehuva ihmistä.
[‘Means a person who is praising him/herself’]
(Kalanti, F. Tanner, 1931)

f. **Kukast kati hännä nosta, jolte se stää ite nost.**
Kukas katin hännän nostaa, jollei se sitä itse nosta.
Who-CL cat-GEN tail-ACC raise-3SG, if-not it itself raise-NEGF.
(Kalanti, A. Virtanen, 1931)

g. **Kukast kati hännä nosta, jolte katt ite.**
Kukas katin hännän nostaa, jos ei katti itse.
Who-CL cat-GEN tail-ACC raise-3SG, if-not cat itself.
(Kalanti, A. Widberg, 1931)

Morpho-syntactic variation in one municipality (Kalanti) and one proverb (”Kukas (se) kissan hännän nostaa…”)

The clitique in the sentence initial interrogative word:

- *kuka-**st*** (a, b, f, g)
- *kuka-**s*** (c, d, e)

Lexical choice of the animal whose tail is raised:

- *katt* ‘cat’ (c, d, f, g)
- *kis(sa)* ‘cat’ (a, b)
- *koera* ‘dog’ (e).

The meaning ‘if not’ has several wordings:

- *jolle* (b, e)
- *jolte* (f, g)
- *ete* (a, c)
- *jos ei* (d)

The subject argument in the subordinate clause (the ‘cat’):

- repetition of the noun (b, d, g).
- pronoun *se* ‘it’ (e, f).
- dropping the subject argument (a, c).

The object argument of the subordinate clause (the ‘tail’):

- dropping the object argument (a, b, c, d, g).
- pronoun *se* ‘it’ in the partitive case: *sitä*, *stää* (e, f).

Repetition of the verb ‘raise’:

- dropped (b, c, d, g).
- repeated (a, e, f).

The gestalt of the proverb?

{…} = alternatives, **Boldface** = ”obligatory” syntactic part, red = the most typical choice, ( ) = optional element

WH-WORD{*kuka*}-*(CL{s, pA, st})* (EXPL{*se*}) (PRON {*muut*})
N_i{***kissa*,*koira***}-{GEN,ABL} **N{*häntä*}$_j$-{ACC,PAR} V{*nostaa*}** (COND)-**3SG**
CONJ{*jos*} NEG{*ei*}

{ **N_i**{***kissa*, *koira***}-NOM REFL{*itse*}**
(PRON$_i$) (PRON$_j$) **REFL{*itse*}** (V {*nosta*, *keikauta*, …}-NEGF) }

WH-WORD {‘who’-(CL) (EXPL{*se*}) (PRON{‘else’}-PL)
N_i {’cat’, ‘dog’} -GEN N_j {‘tail’}-{ACC,PAR} V{‘raise’}-(COND)-**3SG**
CONJ{‘if’} NEG{‘not’}

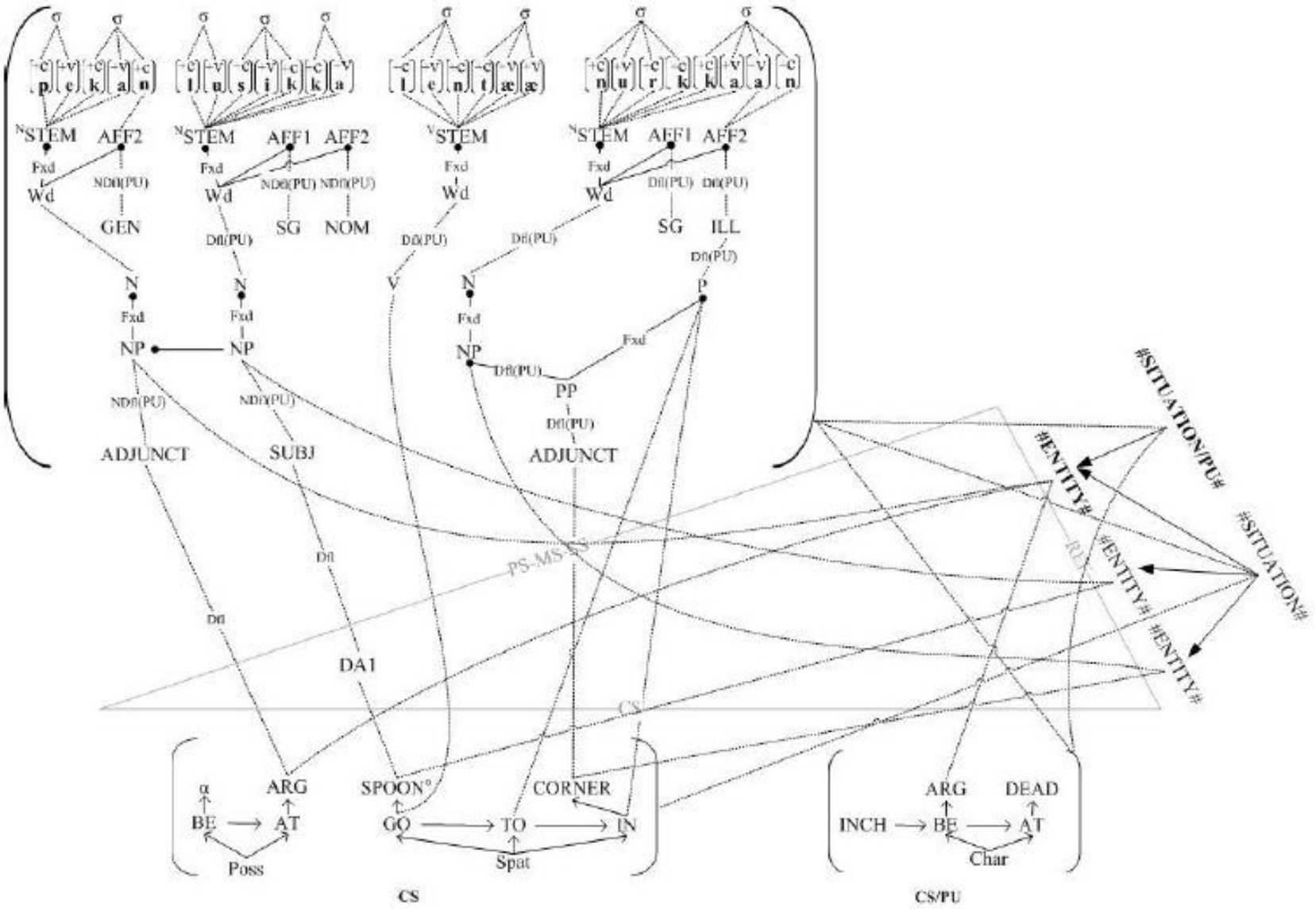
{ **N_i**{***’cat’***, ‘dog’}-NOM REFL{‘self’}**
(PRON$_i$) (PRON$_j$) **REFL{‘self’}** (V({‘raise’, swing’…}) }

Idioms and constructions

- **Oksana Petrova 2011**: *'Of Pearls and Pigs': A conceptual-semantic Tiernet approach to formal representation of structure and variation of phraseological units.* Åbo Akademi University Press.

  Idioms as sets of complex linkings between the nodes of the network that defines the language system.

Idiom *Heittää lusikka nurkkaan* (lit. throw the spoon to he corner) ’die’ as a network (Petrova 2011)

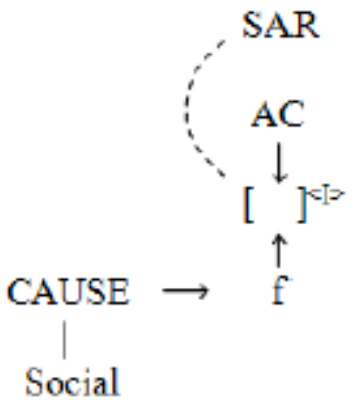


Idioms and constructions

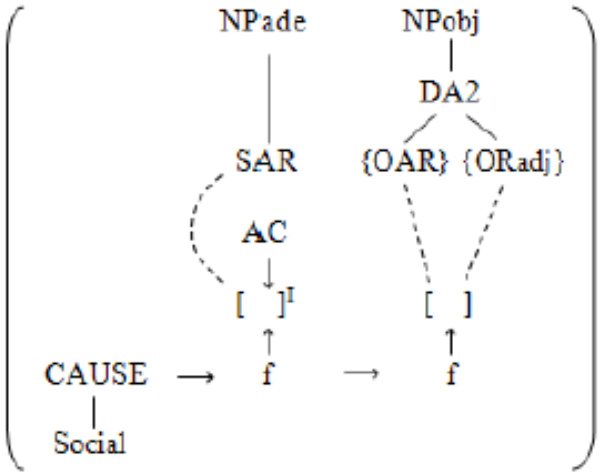
- **Geda Paulsen 2011**: *Causation and Dominance: A Study of Finnish causative verbs expressing social dominance.* Åbo Akademi University Press.
- Causative constructions are interpreted on the basis of a formally defined prototype/template.

Paulsen's (2011) prototypes for Finnish causative constructions of social dominance

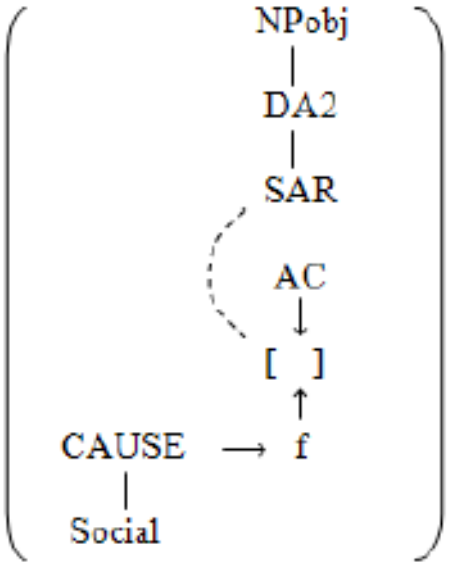
(1) Core of CSD prototypes (**PT**):



2a) Adessive adjunct-actor prototype **PT1**:

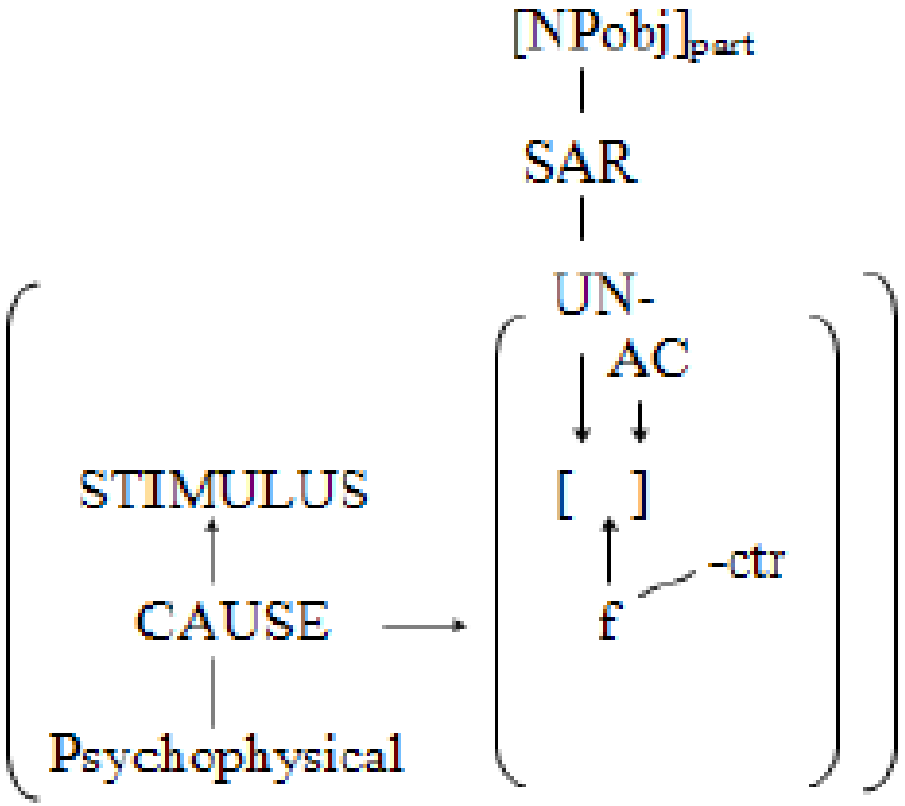


b) Objective actor prototype **PT2**:



Particular constructions (Paulsen 2011)

(7) Responsibility Shift Construction (RSC)



Construction in a communicative situation by Paulsen (2011) (*syötättää* 'eat-CAUS-CAUS')

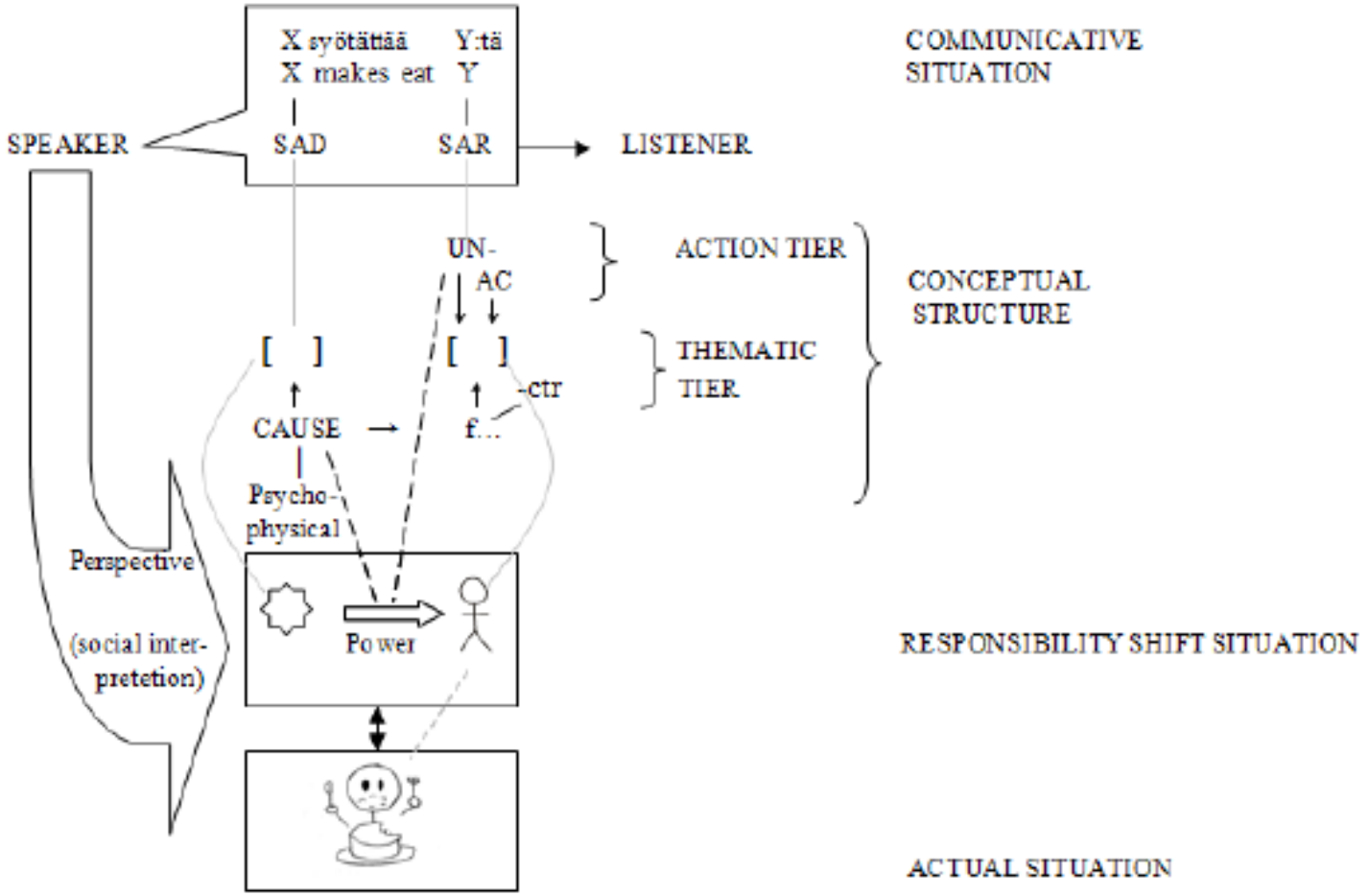
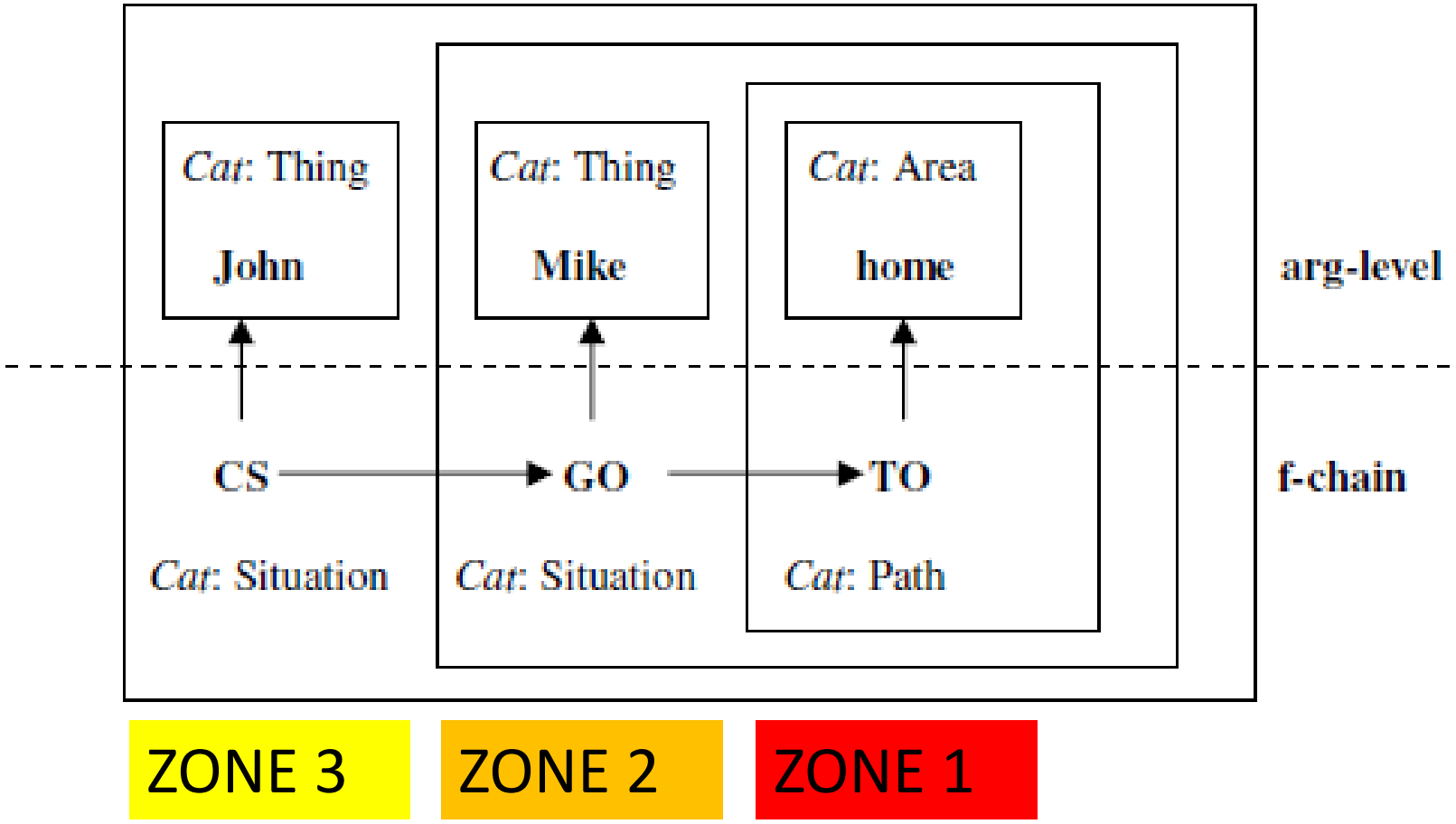


Figure 4. Responsibility Shift Construction and communicative situation

Figure / Ground

The dependency structure and conceptual categories of the thematic structure of the sentence
John made Mike go home. (Nikanne in progress)



f-chain schema

f3* → f2 → f1*

(* indicates that there are none, one or more functions of the kind in the dependency chain)

Zone 1
the location zone

- Functions: Place- and Path-functions (TO, TOWARD, AWAY-FROM, VIA; AT, IN, ON, UNDER, *etc*.) and their arguments.
- Thematic roles: goal, source, route, location.

Zone 2
the non-causative situation zone

- Functions: non-causative situation functions (BE, GO, MOVE, *etc*.).
- Thematic role: theme

Zone 3
the causative (incl. inchoative) zone

- Functions:

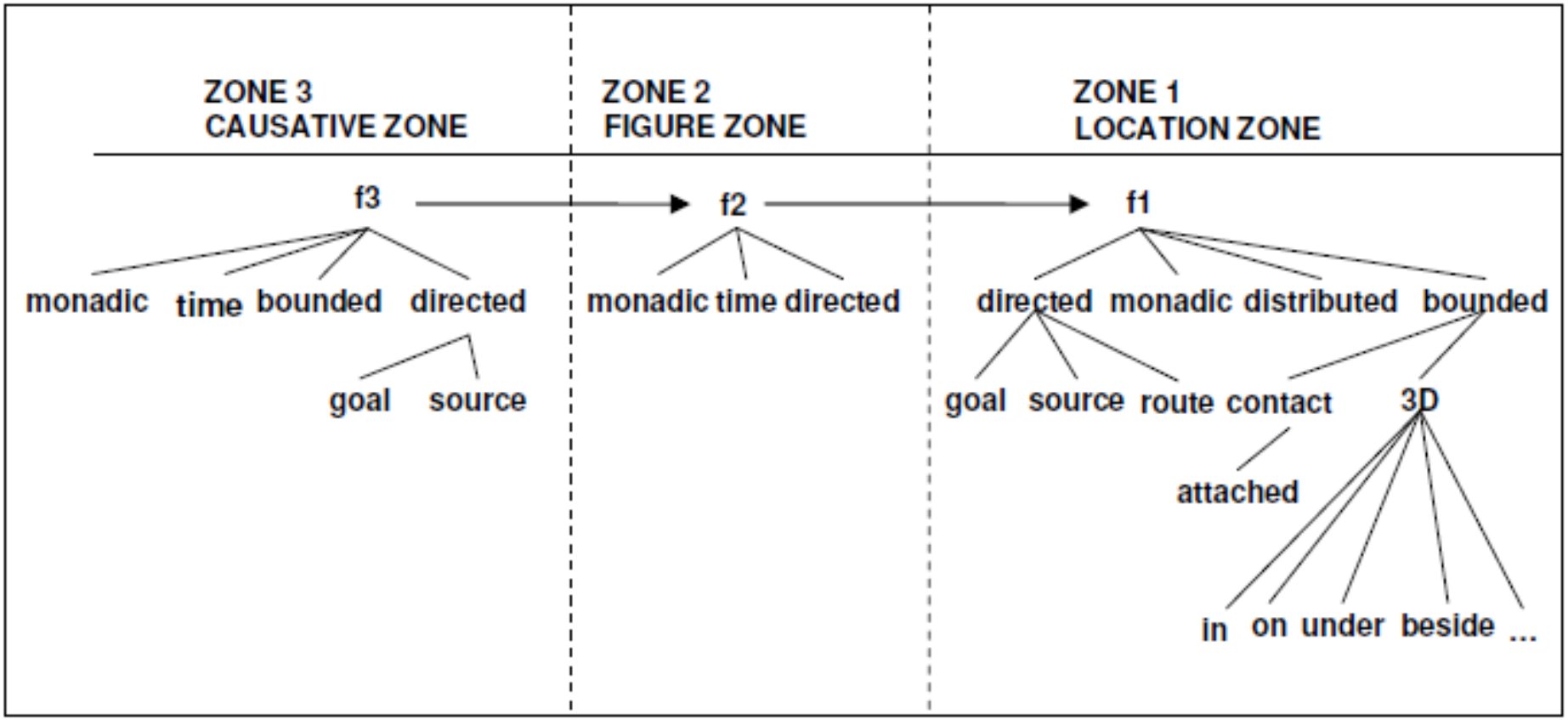
  causative (and inchoative) functions (CS and INC).

- Thematic role:

  causer.

Figure / ground

The f-chain and th-features (Nikanne 1990, forthc.)



FIGURE

GROUND

Argument level formation

General rules:

A. f must select Arg.

Specific rule A.1 f [M] does not need to select Arg.

Specific rule A.1.1 f2 must select Arg.

B. f may select max 1 Arg.

The formation of the CS representation of *John goes into the house*

F-chain schema
→ f2 is obligatory

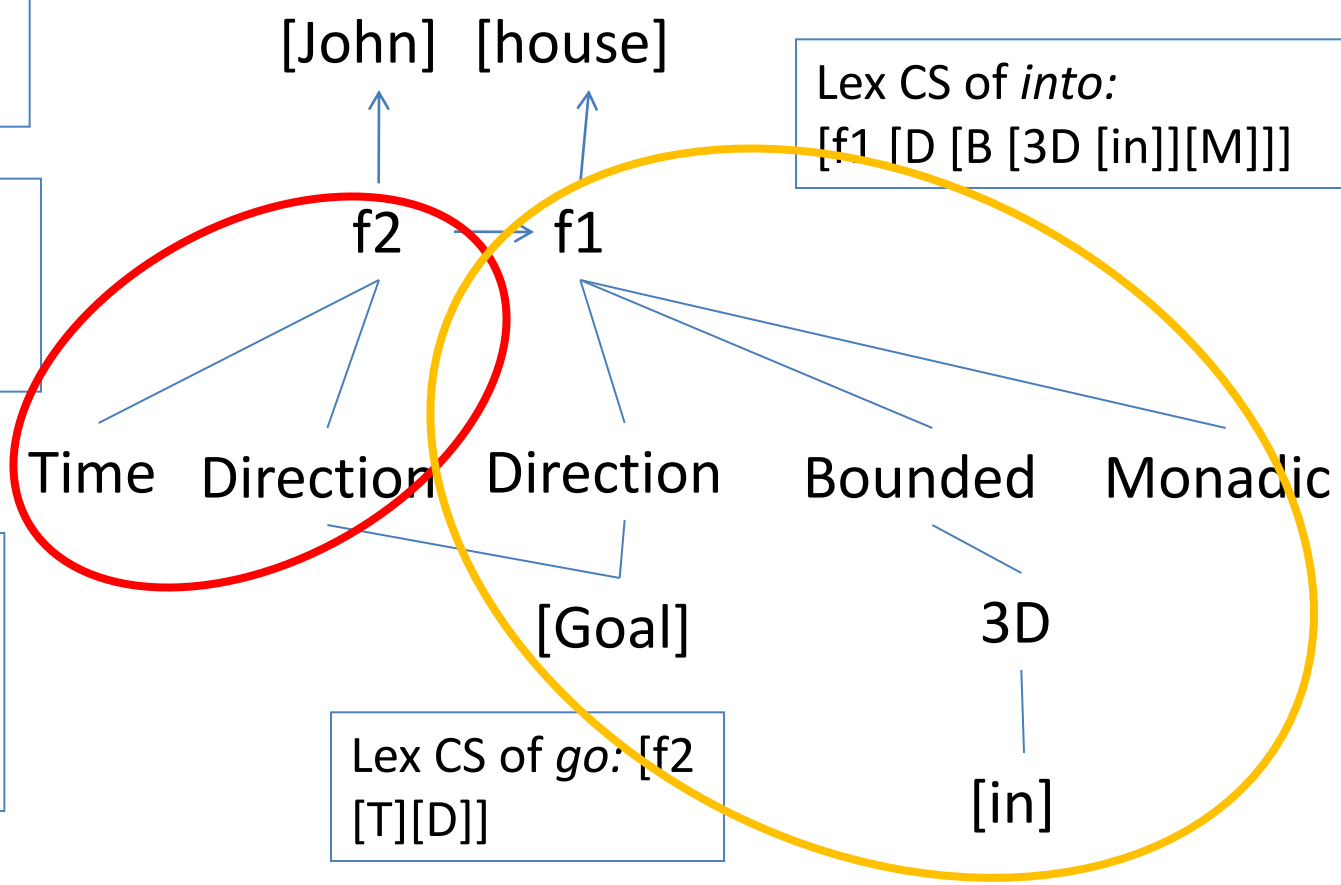
Arg-level formation
→ Arg obligatory

f-chain schema
→The selected f is f1.

Arg-level formation
→ Arg obligatory

Arg level: max 1 arg
+ no feature [M]
→ Select another f.

Dircection
Feature pciple
→D-feature shared with f2 and f1



Lex CS of *into:*
[f1 [D [B [3D [in]][M]]]

Lex CS of *go:* [f2 [T][D]]

To sum up

- The idea of projected world (Jackendoff 1983) is the same as in gestalt psychology: there is a system in the human mind that govern perception and the understanding of linguistic structures. Conceptual Semantics is an attempt to understand that system using a formal approach.
- E.g. the law of similarity and the idea of figure vs. ground can be better understood when they are analyzed as a part of a formal approach, at least in linguistics.