

Arguments, Grammatical Relations, and Diathetic Paradigm

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Aims:

- Supporting the ARG-ST / DEPS / VALENCE distinction
- Working towards a theory of diathesis and diathetic paradigmatic relations in HPSG
- Reconsidering phenomena that are sensitive to subject prominence
- Possibilities of making compatible the insightful HPSG analyses of binding (*Manning and Sag 1998*), causatives (*Manning, Sag and Iida 2000*) and extraction (*Bouma, Malouf and Sag 1998, to appear*)

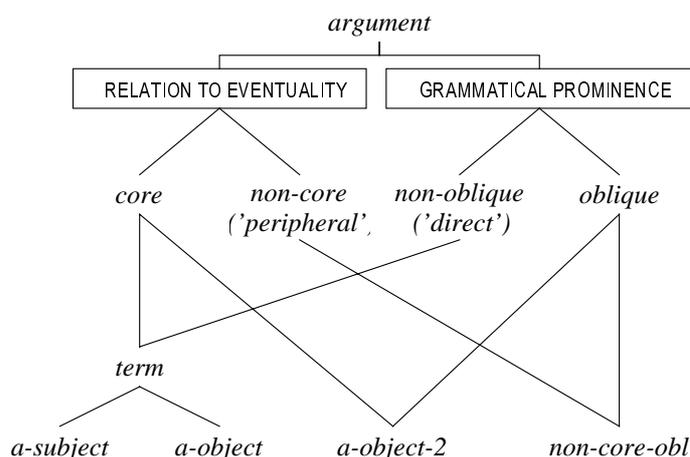
Outline:

1. A refined taxonomy of arguments
 2. *Diathetic vs. adverbial* grammatical relations
 3. Two-tiered lexical representation of diathesis: ARG-ST and DEPS
 4. Diathesis realisation patterns and construction of a diathetic paradigm
 5. Slavic diathetic paradigm (fragmentary)
 6. Remarks on binding: locus, 'subject orientation', an alternative formulation of BT
 7. Further corollary
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Three syntactic representation levels are de facto distinguished in recent HPSG research:

- ARG-ST (inherent argument structure) *arguments*
- DEPS (actual syntactic dependents) *grammatical relations*
- VALENCE (local combinatorial potential) *syntactic functions* (SUBJ, SPR, COMPS)

1 A refined taxonomy of arguments



core arguments (*a-subject, a-object, a-object-2*)

- ⇒ grammatical (non-lexical) case
- ⇒ head-marking (cross-referencing) agreement
- ⇒ linking to the EXPERIENCER thematic role
- ⇒ control of infinitival complements

term arguments (*a-subject, a-object*)

- ⇒ case assignment affected by
 - negation (genitive of negation)
 - nominalisation
- ⇒ involved in diathesis alternations
 - if not linked to EXPERIENCER thematic role

2 Grammatical relations

DEPS < '*diathetic grammatical relations*' | '*adverbial grammatical relations*' >

3 Diathesis

- conceptualises the way in which actual syntactic dependencies relate to predicate's argument structure
- encompasses arguments and diathetic grammatical relations
- *arguments* give rise to the pivotal subset of the *diathetic grammatical relations*
- semantic motivation of **diathesis** is subject to HPSG linking theory (e.g., *Davis 1997*)

- no linking to thematic roles is observed with *adverbial* grammatical relations

	diathesis	"syntactically selected adjuncts" (<i>Bouma, Malouf and Sag to appear</i>)
ARG-ST	<'arguments'>	
DEPS	<'diathetic grammatical relations'	'adverbial grammatical relations'>

4 Diathesis realisation patterns and construction of a diathetic paradigm

A *diathetic paradigm* consists of the various ways in which the arguments can be mapped into diathetic grammatical relations. Constructing a diathetic paradigm presupposes modelling the syntactic aspect of a predicate's diathesis. Basic diathesis realisation patterns: *no alternation, re-arrangement, reduction, extension*.

4.1 How is the diathesis organised depending on the (verb) morphology?

- Argument preserving lexical processes, e.g., canonical active (*no diathesis alternation*), clitic doubling (*no diathesis alternation*), agentive passive (*diathesis re-arrangement*)
- Argument reducing lexical processes, e.g., reflexivisation (*diathesis reduction*), impersonalisation (*diathesis reduction*), pronominal affixation (*diathesis reduction*), medio-passives (*diathesis re-arrangement and reduction*)
- Argument embedding lexical processes, e.g., morphological causative formation (*diathesis extension*), predicative formation (*diathesis extension*), etc.

4.2 General constraints (*Bouma, Malouf and Sag to appear*)

⇒ applying to *all* members of a diathetic paradigm

- Argument Structure Extension (ASE): introduces an under-specified list of adverbial grammatical relations (*synsem* objects of type *adverbial*) as a suffix of the DEPS list.
- Argument Realisation constraint (AR) – called Dependent Realisation in *Bouma Malouf and Sag 1998* – defines the relationship between *grammatical relations* (DEPS) and syntactic functions (SUBJ, SPR, COMPS)

4.3 Diathetic constraints

⇒ capturing the actual differences in diathetic paradigm formation

- argument conservation**: obliqueness preserving mapping of *arguments* to *diathetic grammatical relations*
- a-subject blocking**: the prominent term (*a-subject*) is assigned no grammatical relation
- a-object promotion**: the non-prominent term (*a-object*) is mapped to the most prominent grammatical relation
- a-subject demotion**: the most prominent term (*a-subject*) is mapped to a less prominent diathetic grammatical relation
- no subject**: the value of the valence feature SUBJ must be an empty list
- a-object conservation**: the least prominent term (*a-object*) is mapped to the direct-object grammatical relation

5 Slavic diathetic paradigm (fragmentary)

- Active voice (in general):

$$active-v \Rightarrow \left[\begin{array}{l} \text{ARG-ST } \boxed{1} \\ \text{DEPS } \boxed{1} \oplus \text{list('adverbial')} \end{array} \right] \quad \boxed{\text{argument conservation}}$$

- Reflexive middle (in general):

$$rfl-mid-v \Rightarrow \left[\begin{array}{l} \text{ARG-ST } \langle \boxed{1} \mid \boxed{2} \rangle \\ \text{DEPS } \boxed{2} \oplus \text{list('adverbial')} \end{array} \right] \quad \boxed{\text{a-subject blocking}}$$

- Non-agentive reflexive passive (Czech):

$$nag-rfl-pass \Rightarrow \left[\begin{array}{l} \text{ARG-ST } \langle \boxed{1}, \boxed{2} \mid \boxed{3} \rangle \\ \text{DEPS } \langle \boxed{2} \mid \boxed{3} \rangle \oplus \text{list('adverbial')} \end{array} \right] \quad \begin{array}{l} \boxed{\text{a-object promotion}} \\ \boxed{\text{a-subject blocking}} \end{array}$$

(d) Passive participle (in general) and agentive reflexive passive (Russian, Bulgarian):

$$ag-pass \Rightarrow \left[\begin{array}{l} ARG-ST \langle [1, 2 | 3] \rangle \\ DEPS \langle [2, 1 | 3] \rangle \oplus list('adverbial') \end{array} \right] \quad \begin{array}{l} a-object promotion \\ a-subject demotion \end{array}$$

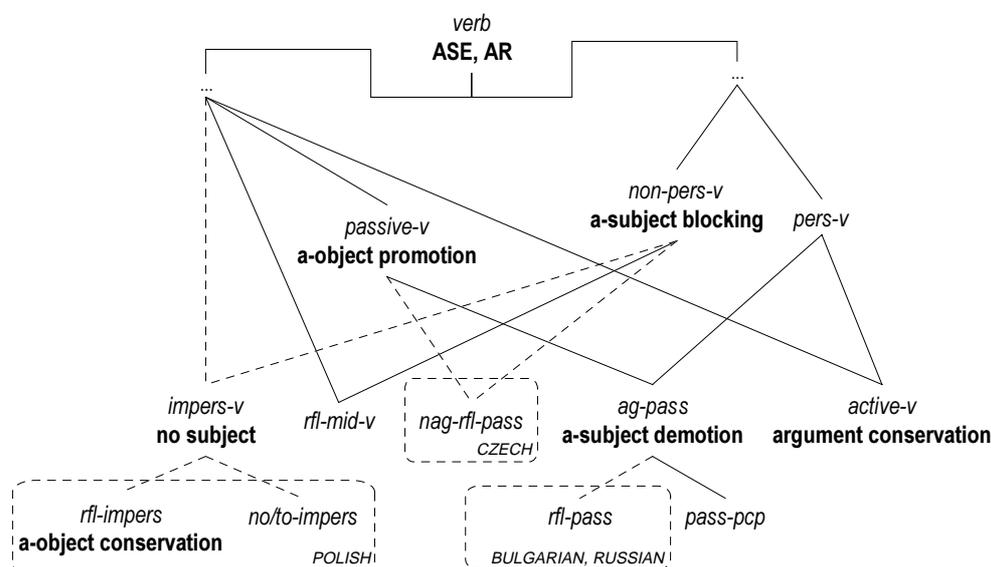
(e) Reflexive impersonal of transitive verbs (Polish, but also Lithuanian):

$$rfl-impers \Rightarrow \left[\begin{array}{l} SUBJ \langle \rangle \\ ARG-ST \langle [1, 2 | 3] \rangle \\ DEPS \langle [2 | 3] \rangle \oplus list('adverbial') \end{array} \right] \quad \begin{array}{l} a-subject blocking \\ a-object conservation \\ no subject \end{array}$$

(f) Impersonal *-no/-to* (Polish):

$$no/to-impers \Rightarrow \left[\begin{array}{l} SUBJ \langle \rangle \\ ARG-ST \langle [1 | 2] \rangle \\ DEPS [2] \oplus list('adverbial') \end{array} \right] \quad \begin{array}{l} a-subject blocking \\ no subject \end{array}$$

Sample association of diathetic constraints with types in a lexical hierarchy:



6 Remarks on Binding Theory (BT)

6.1 A challenge to BT?

Passive (corresponding to (5d))

R1:	<i>On</i> (1)	<i>byl</i>	<i>priglašen</i>	<i>Annoj</i> (2)	<i>iz-za</i>	<i>sebja</i> (1/2).
	he.NOM	was	invited.SG.M	Anna.INST	because-of	SELF
	Russian: He was invited by Anna for his / her sake.					
R2:	<i>Kniga</i> (1)	<i>byla</i>	<i>kuplena</i>	<i>Borisom</i> (2)	<i>dlja sebja</i> (2/*1).	
	book.NOM	was	bought.SG.F	Boris.INST	for SELF	
	Russian: The book was bought by Boris for himself.					
R3:	<i>Oni</i> (1)	<i>byli</i>	<i>predstavleny</i>	<i>Borisom</i> (2)	<i>svoemu</i> (1/2)	<i>šefu</i> .
	they.NOM	were	introduced.PL	Boris.INST	SELF's	boss.DAT
	Russian: They were introduced by Boris to their / his boss. (Russ)					

Impersonal (corresponding to (5e-f))

P4:	<i>Gazety</i>	<i>kupuje</i> /	<i>kupowało</i>	<i>się</i>	<i>tylko</i>	<i>dla</i>	<i>siebie</i> .
	newspapers.ACC	buy.3SG/	bought.3SG.N	REFL	only	for	SELF
	Polish: Newspapers are / were bought only for oneself.						
P4:	<i>Nie mówiono</i>	<i>o</i>	<i>sobie</i> .				
	NEG	speak.IMPERS	about	SELF			
	Polish: It has not been spoken about oneself.						

P6: *Herbatę kupowano tylko dla siebie.*
 tea.ACC buy.IMPERS only for SELF
 Polish: The tea has been bought only for oneself.

6.2 Subject-prominence principle

Some anaphors must be bound by an entity that is first either on the ARG-ST list (*a-subject*) or on the DEPS list (*d-subject*).

a-subject (*Manning*); d-subject: $\left[\begin{array}{l} \text{SUBJ } \langle \boxed{I} \rangle \\ \text{DEPS } \langle \boxed{I} \dots \rangle \end{array} \right]$

6.3 'Subject-oriented' BT

<i>a-bound</i>	bound by a more prominent, i.e. less oblique, element of an ARG-ST list (vs. <i>a-free</i>)
<i>a-subject-bound</i>	bound by the most prominent element of an ARG-ST list
<i>d-bound</i>	bound by the most prominent member of a DEPS list (vs. <i>d-free</i>)
<i>d-subject-bound</i>	bound by the most prominent member of a DEPS list, which occurs as the surface subject in the SUBJ list
<i>locally a-bound</i>	bound by a more prominent (i.e. less oblique) element of the same ARG-ST list (vs. <i>locally a-free</i>)
<i>locally a-subject-bound</i>	bound by the most prominent member of the same DEPS list, which occurs as the surface subject in the SUBJ list
<i>locally d-bound</i>	bound by the most prominent member of the same DEPS list
<i>locally d-subject-bound</i>	bound by the most prominent member of the same DEPS list, which occurs as the surface subject in the SUBJ list

6.4 An alternative formulation of BT principles

Principle A: A reflexive anaphor must be *locally a-subject-bound* or *locally d-bound*.

Principle B: A personal pronoun must be *locally a-free* and *d-free*.

Principle C: A non-pronoun must be *a-free* and *d-free*.

7 Further ('technical') corollary

- no nesting of ARG-ST no PRO, no compression, no toplevel
- derivational types do not modify the inherent argument structure
- pro-drop effects are modelled in the mapping DEPS—VALENCE

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