
Complex types in the (morphologically) Complex Lexicon

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- ▶ Inherent polysemy of Action Nominals (ANs).
- ▶ Types that make up the Complex.
- ▶ Nominals derived from creation and re-description predicates (e.g. *construction*, *translation*).
- ▶ Proposal of modeling of Qualia Structure for these Nominals.
- ▶ Co-predication issues.

ENI / RISULTI meaning contrast

- ▶ La costruzione della diga fu lunga e laboriosa (event)
'The construction of the dam was long and arduous'
- ▶ Presto saranno demolite molte costruzioni (result)
'Many constructions will be demolished soon'

Inherent polysemy of ANS

- ▶ The EVENT/RESULT meaning contrast displayed by most deverbal nominals is a special case of inherent polysemy (=lexically specified, cf. *complex type* or *dot object*, cf. Pustejovsky 1995).
- ▶ All the elements to obtain the polysemy aspects of the derived Nominal can be found in the semantic structure of the base verb and of the forming suffixes, and are inherited in the derivation process

different polysemy of ANS

- ▶ The RESULT sense is not ‘shifted’ from the Event Sense in context (as with *meaning transfers*, cf. Nunberg 1995).
- ▶ The context (sub)selects the relevant reading (*Dot-Object Subtyping/Dot-Exploitation*, cf. Pustejovsky 1995, A&P 2006).

What types make up the Complex.

- ▶ According to Pustejovsky (1995), process-result nominals can be classified as dot objects when both the dot elements are typed as EVENT.
- ▶ EVENT•EVENT or, more specifically, PROCESS•(RESULT-)STATE.

What types make up the Complex.

- ▶ For *-ion* nominalizations in English, three interpretations are available:
 - (a) John fell from the ladder during the construction of the roof frame (PROCESS)
 - (b) With the construction of the roof complete, John start shingling (RESULT-STATE)
 - (c) John's construction of the roof frame for the house was done yesterday (PROCESS•RESULT)

What types make up the Complex.

- ▶ For nominalizations which are derived from verbs of creation (e.g. *building, construction* etc.), the result interpretation may correspond to the individual who is created as a result of the initial process (d below) or to the state itself (b above).

(d) The construction is standing on the next street
(result-object)

Result-State or Result-Object?

- ▶ The RESULT-STATE interpretation is available to derived nominals (e.g. *isolation*, expressing the PROCESS and the STATE):
 - ▶ The *isolation* of the XLA gene would aid in understanding the disorder (process)
 - ▶ It as an attempt by the regime to end its *isolation* (state)

Result-State or Result-Object?

- ▶ The RESULT-STATE is generally not accessible for nominals obtained from verbs expressing events which put a new entity into existence (creation and redescription predicates, e.g. *construct* and *translate*).
- ▶ Creation and Redescription Nominals (e.g. *construction*, *translation*) have a complex event as part of their meaning but are unable to refer to resulting state of this event.

Result-State or Result-Object?

- ▶ They can instead denote the concrete or abstract object obtained by the corresponding event.
- ▶ R-Object: This construction is entirely made of wood.
- ▶ R-Object: This translation is full of misused expressions

Result-State or Result-Object?

- ▶ The notion of Result - for creation and redescription nominals at least - hinges primarily on the concept of an abstract or physical object yielded by a corresponding event.
- ▶ The EVENT/RESULT polysemy exhibited by creation and redescription nominals can be classified primarily as:
 - ▶ EVENT•(RESULT-)OBJECT

Construction E-R-Object

construction.n

EVENTSTR = $\left[\begin{array}{l} E_1 = e_1: \text{process} \\ E_2 = e_2: \text{state} \\ \text{RESTR} = e_1 < e_2 \end{array} \right]$

ARGSTR = $\left[\begin{array}{l} \text{(d)ARG1} = x: \text{animate individual} \\ \text{FORMAL} = \text{phys obj} \\ \text{(d)ARG2} = y: \text{artifact} \\ \text{CONST} = z \\ \text{FORMAL} = \text{entity} \\ \text{(d)ARG3} = z: \text{material} \\ \text{FORMAL} = \text{mass} \end{array} \right]$

QUALIA = $\left[\begin{array}{l} \text{event} \cdot \text{result-object_lcp} \\ \text{FORMAL: cause (e,y)} \\ \text{AGENTIVE: construct (e,x,z,y)} \end{array} \right]$

arguments

- ▶ The result does not necessarily correspond to a syntactic argument of the base verb.
- ▶ *translation*: the result (= informational object) is not expressed by a dedicated DP in the syntax of the corresponding base verb.
- ▶ *translate*: John translated the book.
- ▶ There is no binding of an argument structure participant.

translation E•R-object

translation.n

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ARGSTR = $\left[\begin{array}{l} \text{(d)ARG1} = x: \text{human} \\ \quad \text{FORMAL} = \text{phys obj} \\ \text{(d)ARG2} = y: \text{artifact} \\ \quad \text{FORMAL} = \text{info_physobj} \\ \text{(h)ARG3} = z: \text{artifact} \\ \quad \text{FORMAL} = \text{info_obj} \end{array} \right]$

QUALIA = $\left[\begin{array}{l} \text{event}\cdot\text{result-object_lcp} \\ \text{FORMAL: cause (e,z)} \\ \text{AGENTIVE: translate (e,x,y,z)} \end{array} \right]$

complex type

- ▶ From a theoretical point of view, the special nature of AN complex types lies in the asymmetry – at the ontological level – between the types making up the complex.
- ▶ Not only are events and objects radically distinct ontological categories, but the RESULT-OBJECT type is temporally and causally dependent on the EVENT type since the performance of the event is the precondition for the (coming into) existence of the result.

Co-predication issues

- ▶ Troubles with co-predication usually attested with ANs (cf. Jacquy 2001 inter alia) are the direct indication of such asymmetry.

Syntactic incompatibility

- ▶ Infelicitous co-predication with ANs also depends on the syntactic incompatibility between the senses in context.
 - ▶ EVENT nominals tend to retain verb argument structure and project an argument (generally, the internal one).
 - ▶ RESULT nominals may “absorb” the internal argument and consequently block its projection.
 - ▶ #The *construction of this house* is huge and took forever.
 - ▶ The *translation of this book* is perfect now but took forever.

pragmatic constraints

- ▶ While acceptable co-predication usually implies the existence of a single structure, it does not follow that the converse is true (Copestake and Briscoe 1995).
 - ▶ A semantic-pragmatic principle of cohesion may be at play, which restricts the acceptability of certain semantic combinations in context.

Discourse factors

- ▶ Factors of discourse coherence may play a role in facilitating or blocking a specific combination (cf. Brandtner 2009).
 - ▶ #The *newspaper* was founded in 1878 and weights lbs. (Asher and Pustejovsky 2006).
 - ▶ No salient relation between the fact of being founded and the fact of weighting a certain amount.

Co-predication with artifactuals

- ▶ Co-predication may involve not only dot objects but also artifactuals (even if for artifactuals it is possible only under coercive contexts) (Asher and Pustejovsky 2006).
- ▶ Arnold's *cigar* is Cuban and lasted the whole afternoon. (Asher and Pustejovsky 2006)

- ▶ We carry out an empirical investigation to validate our hypothesis that the inherent asymmetric structure of event-result nominals constitutes a major constraint on their co-predication.

Co-predication data

- ▶ We extract co-predication contexts from the ItWaC corpus (Baroni and Kilgarriff 2006) with the help of regular expressions in CQL.
- ▶ Our targeted data consists of coordination and subordination structures with “conflicting” Vs and/or ADJs (“conflicting”=contradictory in type specification) that pick out different meanings of the same nominal (Rumshisky et al. 2007).

methodological concerns

Instead of speculating about impossible co-predications, we look for co-predications that are **effectively attested**, and analyze their structural and pragmatic properties.

in order to **induce from the data** the general factors that allow event-result co-predication to take place instead of concentrating primarily on the constraints.

Our methodology is **theory-informed** but should be understood as a **bottom-up methodology**.

La **costruzione**, che **si protrasse**_E fino al XVII secolo **rimane un'importante testimonianza**_R della geniale tematica del Palladio.

'The construction, which *continued* till the XVII century, *represents an important evidence* of Palladio's ingenious artwork'.

Lungo le strade sulle quali sono indicati i punti di vista
devono essere vietate **costruzioni** che **impediscono**
le visuali del paesaggio.

‘Along the roads where lookout points are indicated
one *must prohibit* constructions that *block* the visual
of the landscape’.

Ed è in fase di completamento **E** un'ulteriore **costruzione** che **permetterà** **R** l'allevamento di animali da cortile.

‘And an additional construction *is being completed* that *will allow* the breeding of courtyard animals’.

Oltre la chiesa **portò a termine** anche la **costruzione** che **doveva servire** alle scuole.

‘Beside the church he also *accomplished* the construction which *was meant to serve* to the schools’.

Concluding Remarks

We have proposed that the polysemy of ANs is formally encoded at the QS level.

The relation between the senses is identified as 'causal'.

The EVENT sense is primary w.r.t. the RESULT sense.

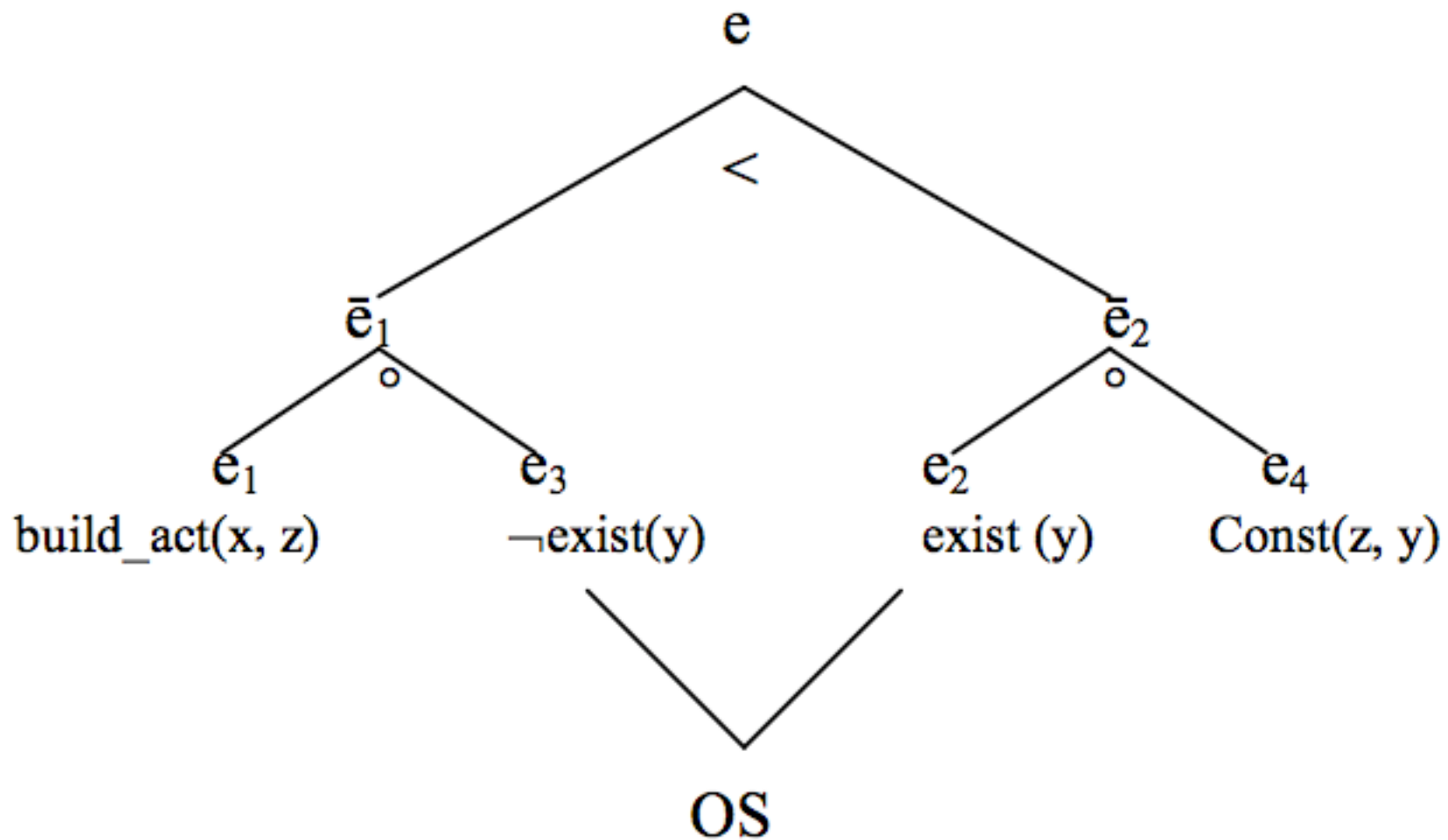
Partial failure of co-predication with ANs is particularly expected because of this semantic asymmetry and can be explained in relation to different syntactic and semantic requirements of the EVENT and RESULT types.

Further corpus work will help to spell out the

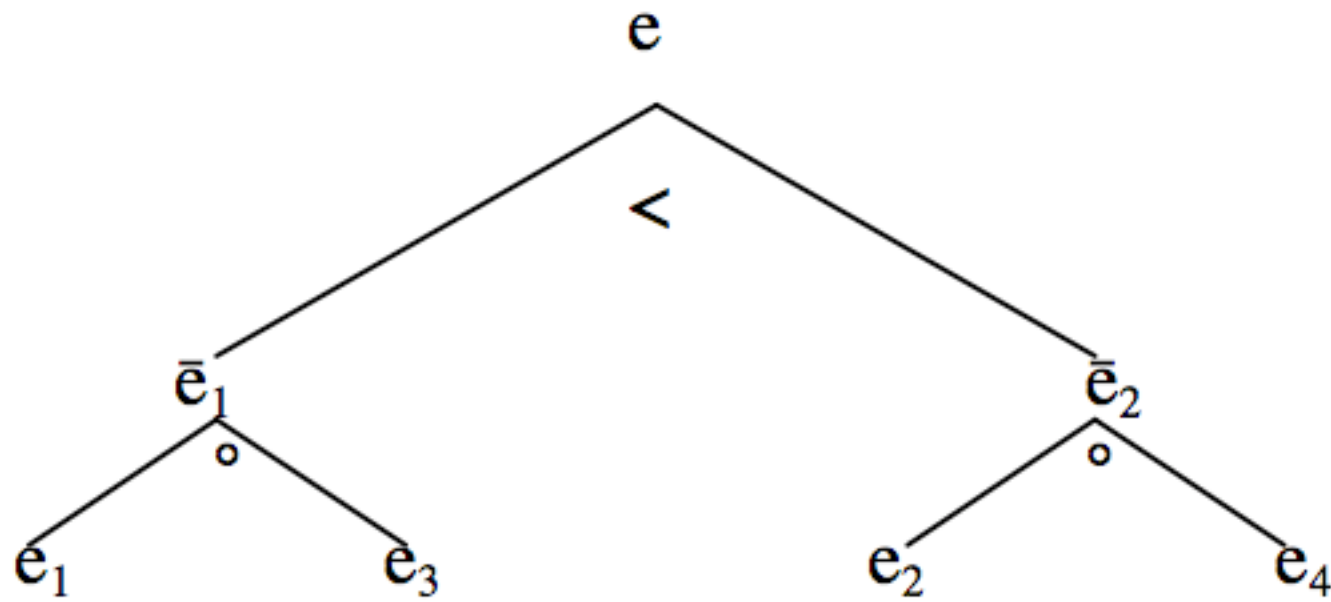
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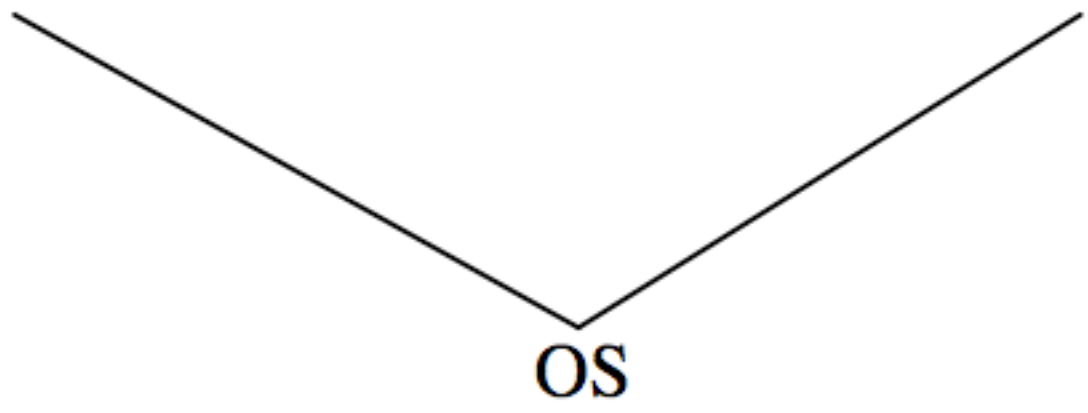
Enriched Event Structure



Event Structure



$\text{translate_act}(\text{John}, \text{book}) \neg \text{exist}(\text{translation}) \text{ be_translated}(\text{book}) \text{ exist}(\text{translation})$



(Pustejovsky 1995)

construction.n

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