The syntax-semantics interface of PP resultatives in Italian and English

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Outline

1. Examples of PP resultative constructions in English and Italian
2. Informal semantic analysis of the different types of PP resultatives
3. Role and Reference Grammar and the syntax-semantics interface
4. Decompositional frame semantics
5. Syntactic analysis of PP resultative constructions
6. Constructional schemas with frame semantics for PP resultatives
7. Formal decomposition of the constructional schemas

PP resultatives

English

[cf. Carrier & Randall 1992, Boas 2003, Goldberg & Jackendoff 2004, Gehrke 2008, etc.]

(1) a. John **cut** the meat **in**(**to**) cubes.
b. Mary **tore** the sheet **into strips**.
c. The grocer **ground** the beans (**in**)**to a fine powder**.
d. They **gathered** the wood **into a pile**.
e. She **pounded** the dough **into a pancake**.
f. The iceberg **broke into several small pieces**.
g. The butter **melted into a lumpy liquid**.

(2) a. Kim **swept** the leaves **into a pile**.
b. She **ran** her sneakers **to tatters**.
c. The professor **talked** us **into a stupor**.
d. He **sang** himself **to exhaustion**.

(3) a. John **ran**/**danced into the kitchen**.
b. The ball **rolled under the table**.
c. John **pushed**/**rolled** the barrel **into the kitchen**.
d. Mary **sneezed** the tissue **off the table**.

PP resultatives

Italian [cf. Napoli 1992, Kaufmann & Wunderlich 1998, Folli & Ramchand 2006, Riccio 2014, etc.]

(4) a. Gianni **ha rotto** il vaso **in mille pezzi**.
'*Gianni broke the vase in a thousand pieces.*'

b. La lastra di cristallo **si è rotta in cinque pezzi**.
'*The crystal platter broke into five pieces.*'

c. Il metallo **fonde in una massa bollente**.
'*The metal melted to a boiling mass.*'

d. La cuoca **ha pressato** la carne **a fettine sottili**.
'*The cook pressed the meat to thin slices.*'

e. **Hanno rastrellato** le foglie **in un mucchio**.
'*They raked the leaves into a pile.*'

(5) a. #Hanno **spazzato** le foglie **in un mucchio**.
'*They swept the leaves into a pile.*'

b. #**Corre** le sue scarpe **a brandelli**.
'*He runs his shoes to pieces.*'

(6) a. Gianni è **corso**/#**danzato nella stanza**.
'*Gianni ran/danced into the room.*'

b. La palla **rotolò sotto il tavolo**.
'*The ball rolled under the table.*'

c. Ho **spinto** il pianoforte **nella sala da pranzo**.
'*I pushed the piano into the dining room.*'

PP resultatives

English

- High flexibility with respect to adding (and dropping) semantic arguments in resultative constructions.
- The meaning of the verb does not necessarily entail or implicate the type of change expressed in the construction.
  - → **strong resultatives** are allowed

Italian

- Only arguments of the verbal predicate can occur in resultative constructions.
- The meaning of the verb naturally entails or implicates the type of change expressed in the construction.
  - → only **weak resultatives** are permitted

[cf. Washio 1997]

Semantic analysis

The event structure of strong resultatives

- An **additional (telic) subevent** is added by the meaning of the result PP which is (interpreted as being) **caused** by the event denoted by the verb.
- The additional subevent is about a change of state or location of an entity which is (usually) **not** referred to by **an argument** of the verb.
- The composition of the semantic representations is (fairly) straightforward:

talk **do′**(x, **talk′**(x))
into a stupor BECOME **be-in-a-stupor′**(y)
→ [**do′**(x, **talk′**(x))] CAUSE [BECOME **be-in-a-stupor′**(y)]

sneeze **do′**(x, **sneeze′**(x))
off the table BECOME NOT **be-on′**(table, y)
→ [**do′**(x, **sneeze′**(x))] CAUSE [BECOME NOT **be-on′**(table, y)]

[≈ Kaufmann & Wunderlich 1998, Levin & Rappaport Hovav 2004, Riccio 2014, among others]

Semantic analysis

The event structure of weak resultatives

- The result PP does **not** introduce **an additional subevent** but imposes a **result condition** on a (dynamic) component of the event denoted by the verb.
- The event denoted by the verb can be characterized as a **change** along a certain **dimension** or **scale** (of one of the arguments), and the result PP describes some (final) value on that scale.

run path (scale)	*into the room* location of the end point of the path
rake (= *gather with a rake*) accumulation (scale)	*into a pile* form of the resulting accumulation

- The semantic composition operation needs to access the **internal structure** of the event representation associated with the verb.

  This issue is closely related to the question of the proper semantic representation of **active accomplishments**! [→ Van Valin, yesterday's talk]

Remark: Weak resultatives can also denote complex events given that the verbal predicate does so (e.g., *fare scivolare* '(make) slide').

The syntax-semantics interface

Two kinds of frameworks

"Syntactocentric" frameworks [Hale & Keyser, Ramchand, and many others]

- Assumption of a tight coupling of event structure and morphosyntax.
- Predicate decompositions are regarded as syntactic representations.
- Assumption of a very abstract level of syntax.
- Elimination of the traditional distinction between the lexical and the phrasal level.

[on PP resultatives see, e.g., Folli & Ramchand 2005, Mateu 2012]

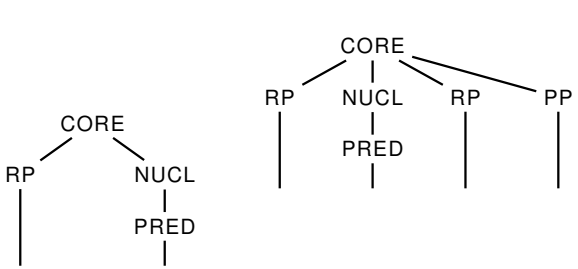
"Linking" frameworks [Van Valin, Bresnan, Sag, Wunderlich, etc.]

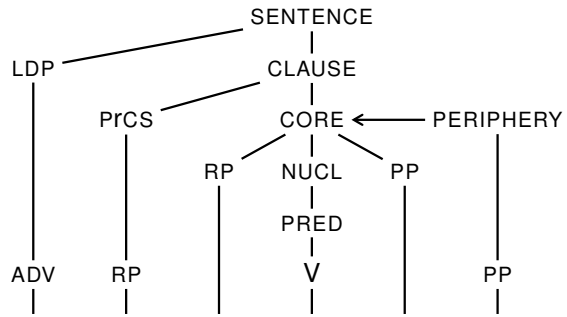
- A more concrete and surface-oriented notion of syntax.
- The distinction between the syntactic and the semantic levels is maintained.
- A linking theory is concerned with the interaction between syntax and semantics.

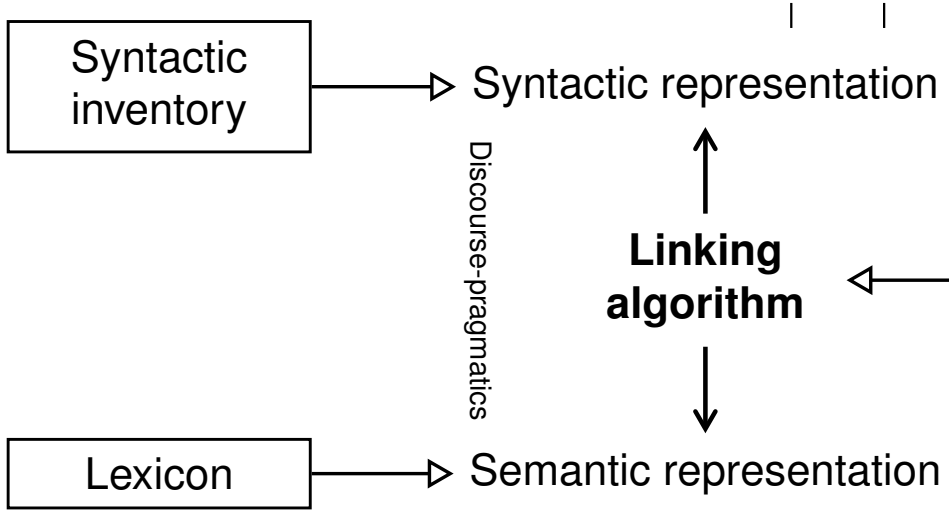
→ The difference between strong and weak resultatives may not be visible at the level of syntactic representations.

The syntax-semantics interface

Overall organization of Role and Reference Grammar (RRG) [e.g. Van Valin 2005]







$[\textbf{do}'(x, \varnothing)]$ CAUSE $[\text{INGR } \textbf{shattered}'(y)]$

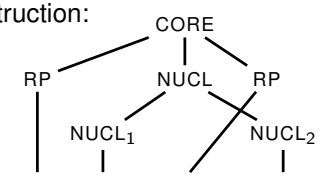
$\langle_{\text{IF}}$ *INT* $\langle_{\text{TNS}}$ *PRES* $\langle_{\text{ASP}}$ *PERF PROG* $\langle \textbf{do}'(\text{Kim}, [\textbf{cry}'(\text{Kim})]\rangle\rangle\rangle\rangle$

MORPHOLOGY —

SYNTAX Juncture: nuclear

Nexus: cosubordination

Construction:



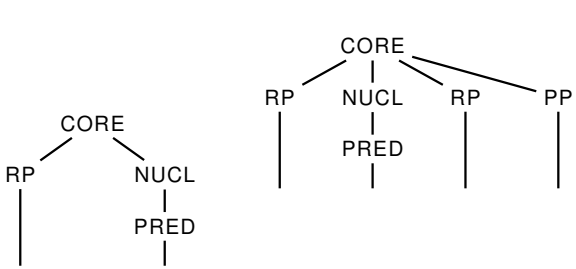
Linking: default

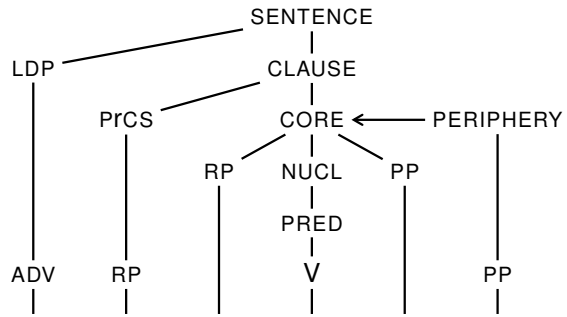
SEMANTICS $[\text{SEM}_{\text{NUCL}_1}]$ CAUSE $[\text{SEM}_{\text{NUCL}_2}]$

PRAGMATICS unspecified

The syntax-semantics interface

Overall organization of Role and Reference Grammar (RRG) [e.g. Van Valin 2005]





Syntactic inventory → Syntactic representation

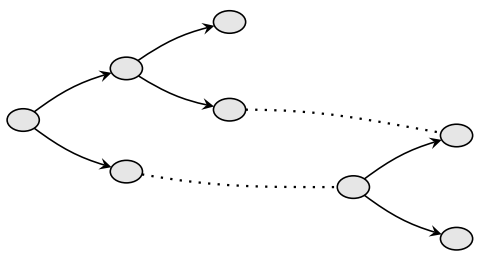
Discourse-pragmatics

Linking algorithm

Constructional schemas → **Linking algorithm**

Linking algorithm → Semantic representation

Lexicon → Semantic representation



MORPHOLOGY —

SYNTAX Juncture: nuclear

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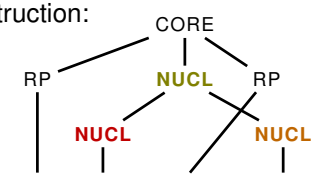
Construction:



Linking: default

SEMANTICS

PRAGMATICS unspecified

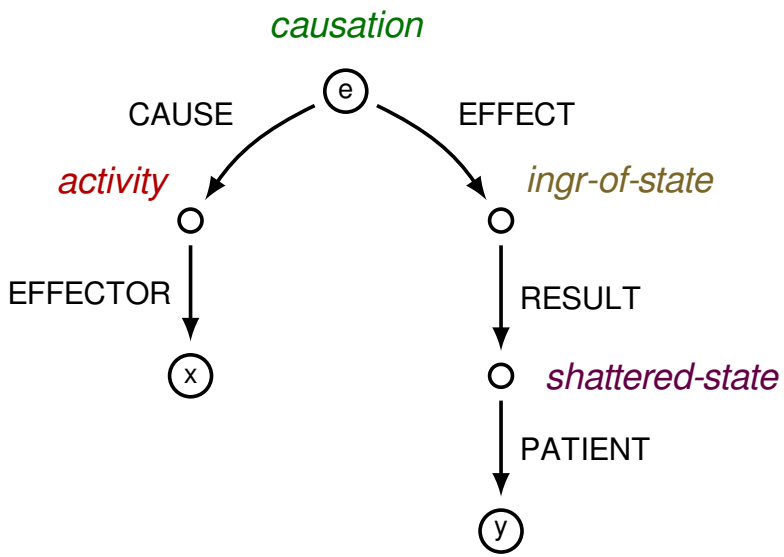
Decompositional frame semantics

From logical structures to decompositional frames [Osswald & Van Valin 2014]

(7) [**do′**(x, Ø)] CAUSE [INGR **shattered′**(y)]

Decompositional frames as (minimal) models of attribute-value descriptions

frame/feature structure



description in attribute-value logic

$\boxed{e} : \textit{causation} \;\wedge\; \boxed{e} \cdot \text{CAUSE} : \textit{activity} \;\wedge\; \boxed{e} \cdot \text{CAUSE EFFECTOR} \triangleq \boxed{x} \;\wedge$
$\boxed{e} \cdot \text{EFFECT} : \textit{ingr-of-state} \;\wedge\; \boxed{e} \cdot \text{EFFECT RESULT} : \textit{shattered-state} \;\wedge$
$\boxed{e} \cdot \text{EFFECT RESULT PATIENT} \triangleq \boxed{y}$

$$\exists e' \exists e'' \exists s\,(\textit{causation}(\boxed{e}) \;\wedge\; \text{CAUSE}(\boxed{e}, e') \;\wedge\; \text{EFFECT}(\boxed{e}, e'') \;\wedge\; \textit{activity}(e') \;\wedge\; \text{EFFECTOR}(e', \boxed{x}) \;\wedge\; \textit{ingr-of-state}(e'') \;\wedge\; \text{RESULT}(e'', s) \;\wedge\; \textit{shattered-state}(s) \;\wedge\; \text{PATIENT}(s, \boxed{y}))$$

description in predicate logic

$$\boxed{e}\begin{bmatrix} \textit{causation} \\ \text{CAUSE} \begin{bmatrix} \textit{activity} \\ \text{EFFECTOR}\ \boxed{x} \end{bmatrix} \\ \text{EFFECT} \begin{bmatrix} \textit{ingr-of-state} \\ \text{RESULT} \begin{bmatrix} \textit{shattered-state} \\ \text{PATIENT}\ \boxed{y} \end{bmatrix} \end{bmatrix} \end{bmatrix}$$

attribute-value matrix notation

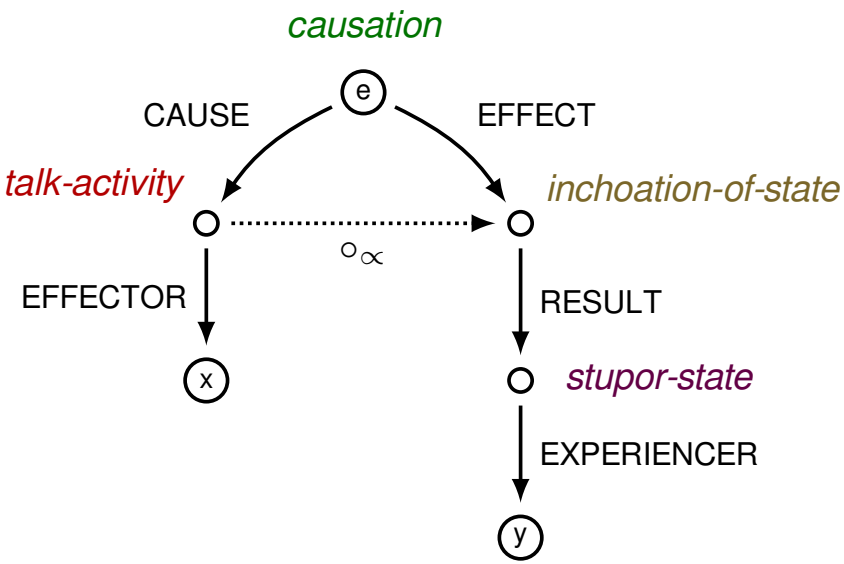
Decompositional frame semantics

Basic assumption

Semantic components (participants, subevents, etc.) can be (recursively) addressed by (functional) roles or attributes.

→ inherently structured representations, composition by unification

Example



$$\boxed{e}\begin{bmatrix} \textit{causation} \\ \text{CAUSE}\ \boxed{1}\begin{bmatrix}\textit{talk-activity}\\ \text{EFFECTOR}\ \boxed{x}\end{bmatrix} \\ \text{EFFECT}\ \boxed{2}\begin{bmatrix}\textit{inchoation-of-state}\\ \text{RESULT}\begin{bmatrix}\textit{stupor-state}\\ \text{EXPERIENCER}\ \boxed{y}\end{bmatrix}\end{bmatrix}\end{bmatrix}$$

$$\boxed{1} < \circ_\propto \boxed{2}$$

$< \circ_\propto$ “exhaustive ordered overlap”

[Pustejovsky 1995]

Decompositional frame semantics

Basic assumption

Semantic components (participants, subevents, etc.) can be (recursively) addressed by (functional) roles or attributes.

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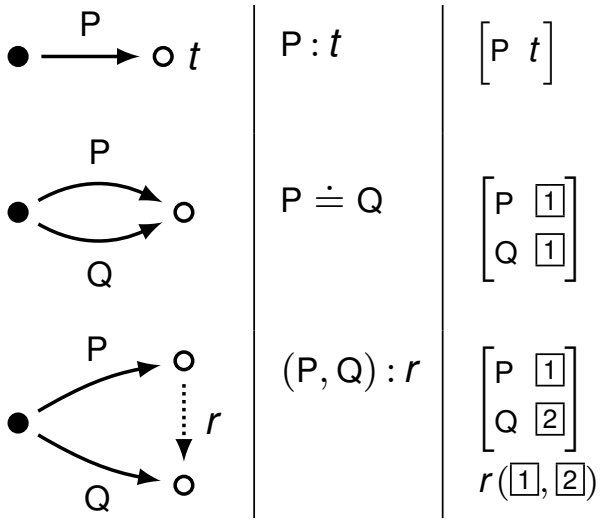
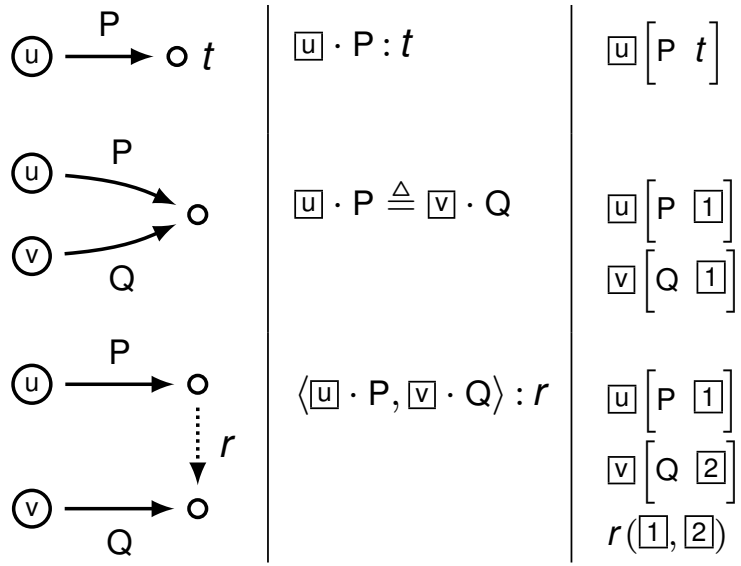
Formalization

Base-labeled feature structures with types and relations [Kallmeyer & Osswald 2013]





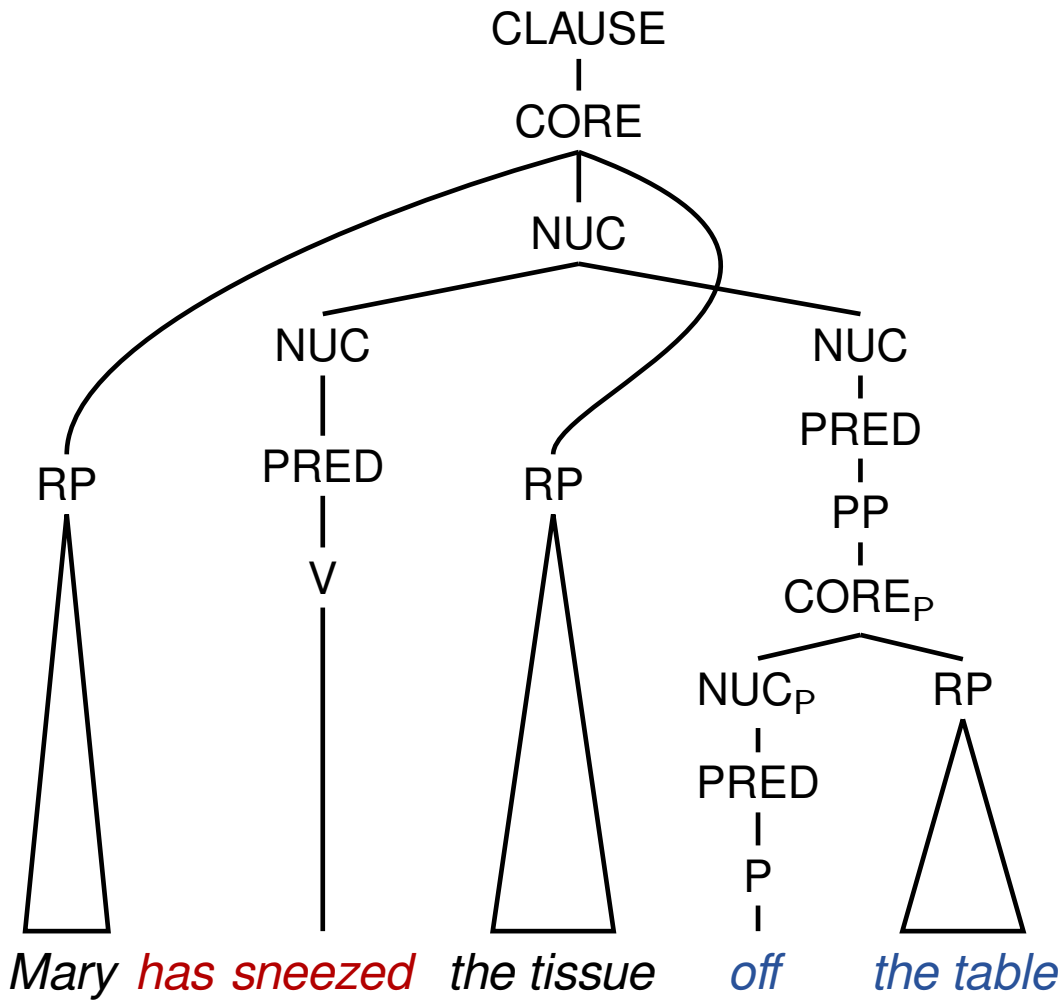
Possible constraints: $\mathrm{P} : \top \preceq s$, $s \wedge t \preceq \mathrm{P} \doteq \mathrm{Q}$, ...

Syntactic representation

Proposal: Weak and strong (PP) resultatives in Italian and English are **nuclear cosubordination** structures. [≈ Van Valin 2014]

English

strong motion
PP resultative

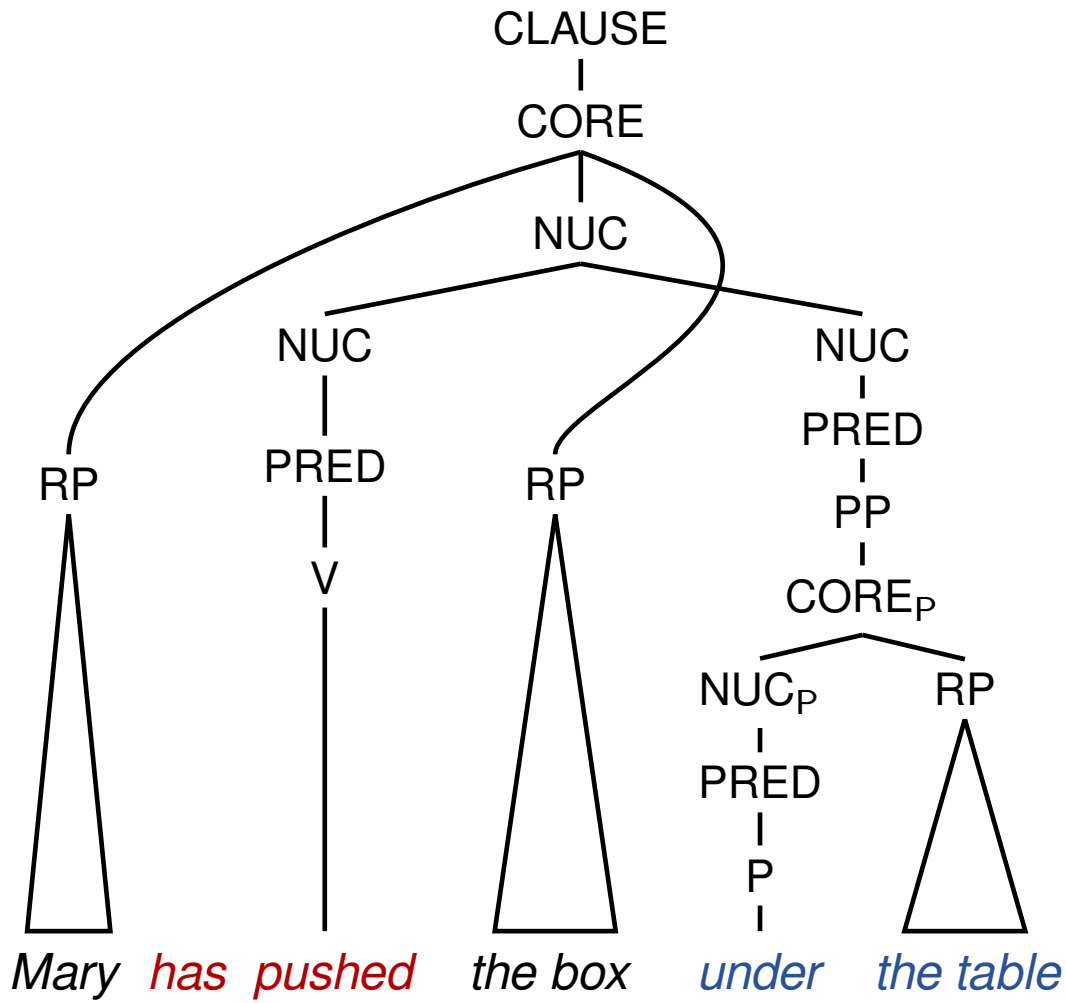


Syntactic representation

Proposal: Weak and strong (PP) resultatives in Italian and English are **nuclear cosubordination** structures. [≈ Van Valin 2014]

English

weak motion
PP resultative

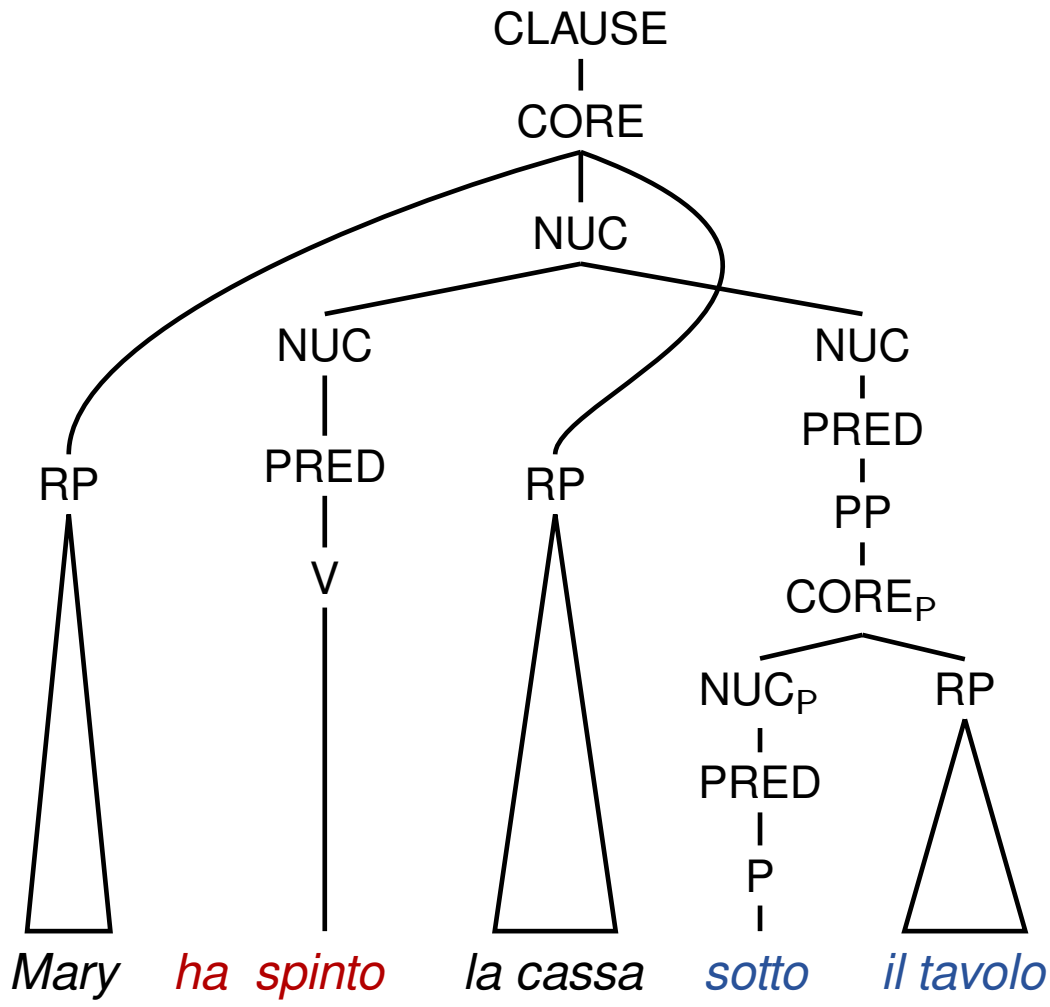


Syntactic representation

Proposal: Weak and strong (PP) resultatives in Italian and English are **nuclear cosubordination** structures. [≈ Van Valin 2014]

Italian

weak motion
PP resultative

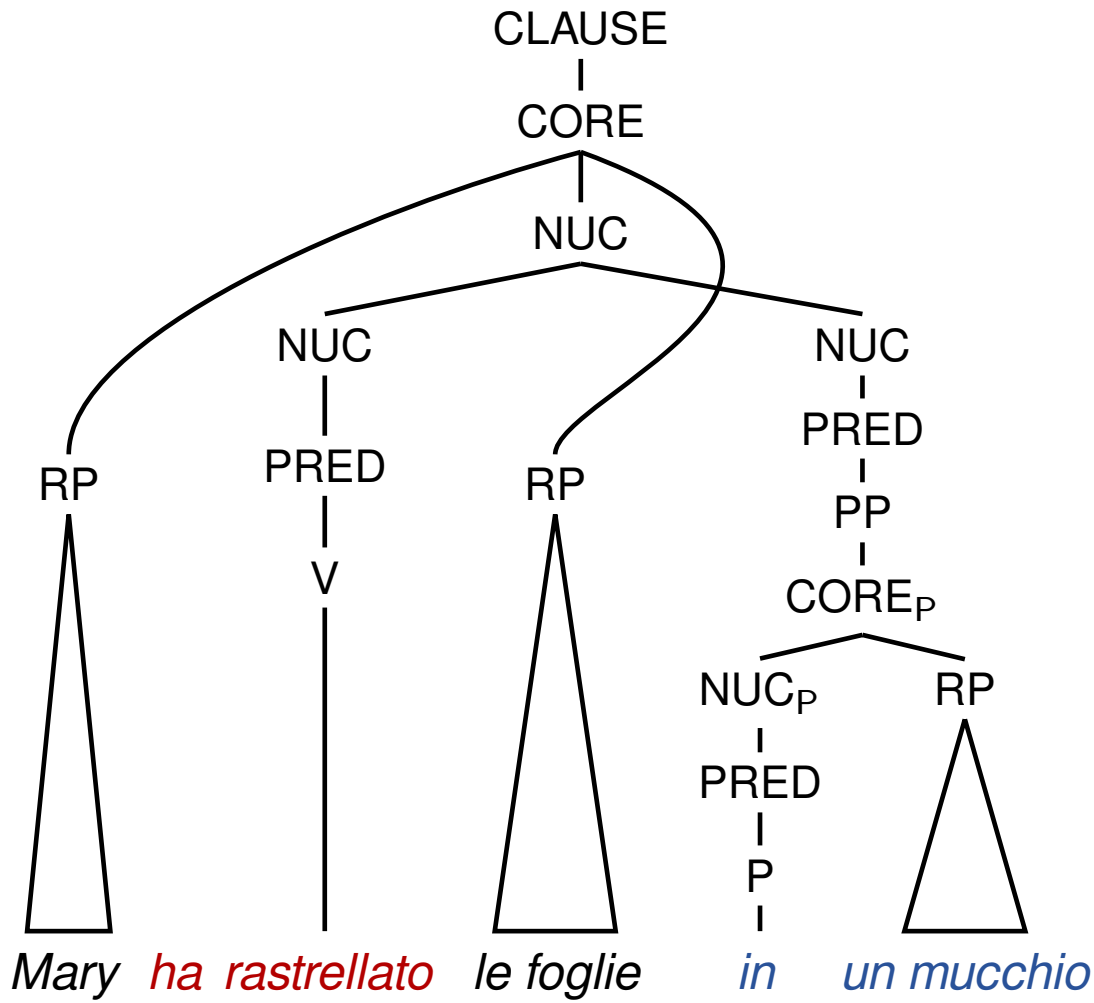


Syntactic representation

Proposal: Weak and strong (PP) resultatives in Italian and English are **nuclear cosubordination** structures. [≈ Van Valin 2014]

Italian

weak
PP resultative

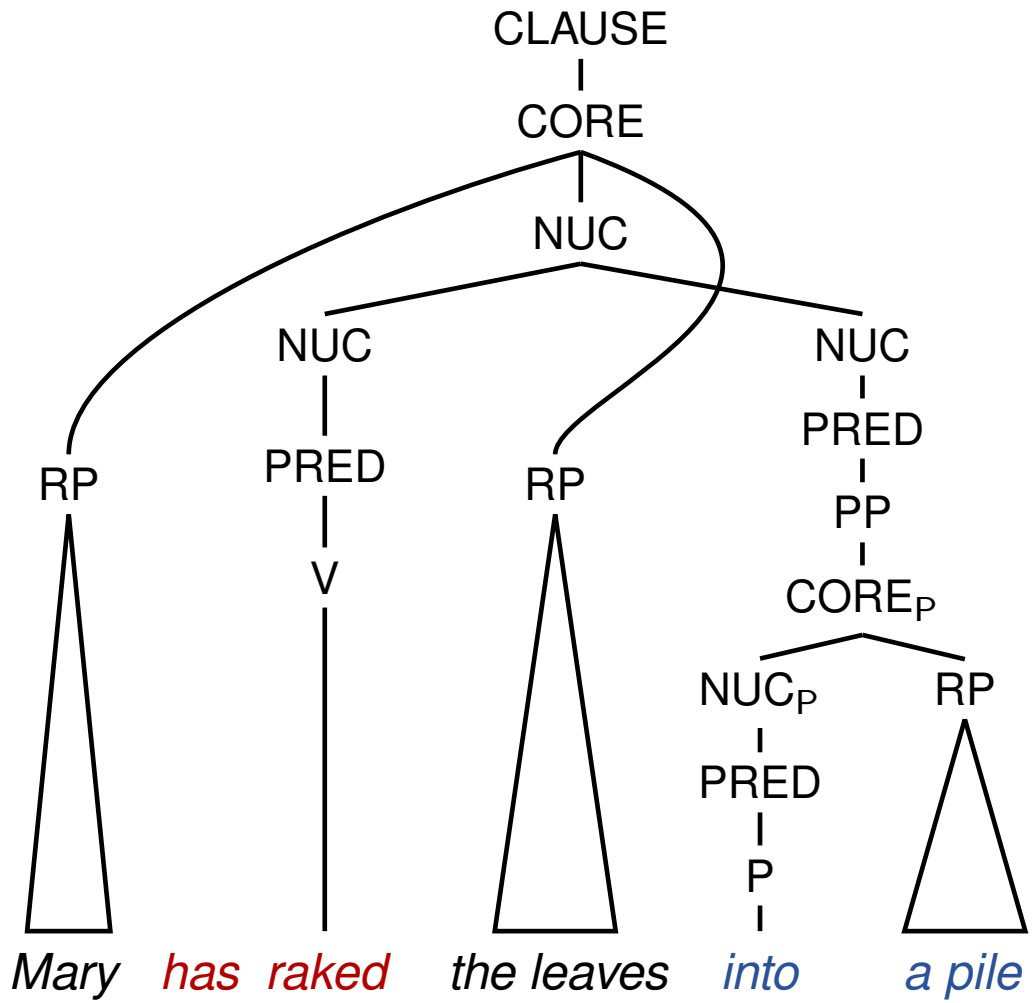


Syntactic representation

Proposal: Weak and strong (PP) resultatives in Italian and English are **nuclear cosubordination** structures. [≈ Van Valin 2014]

English

weak
PP resultative



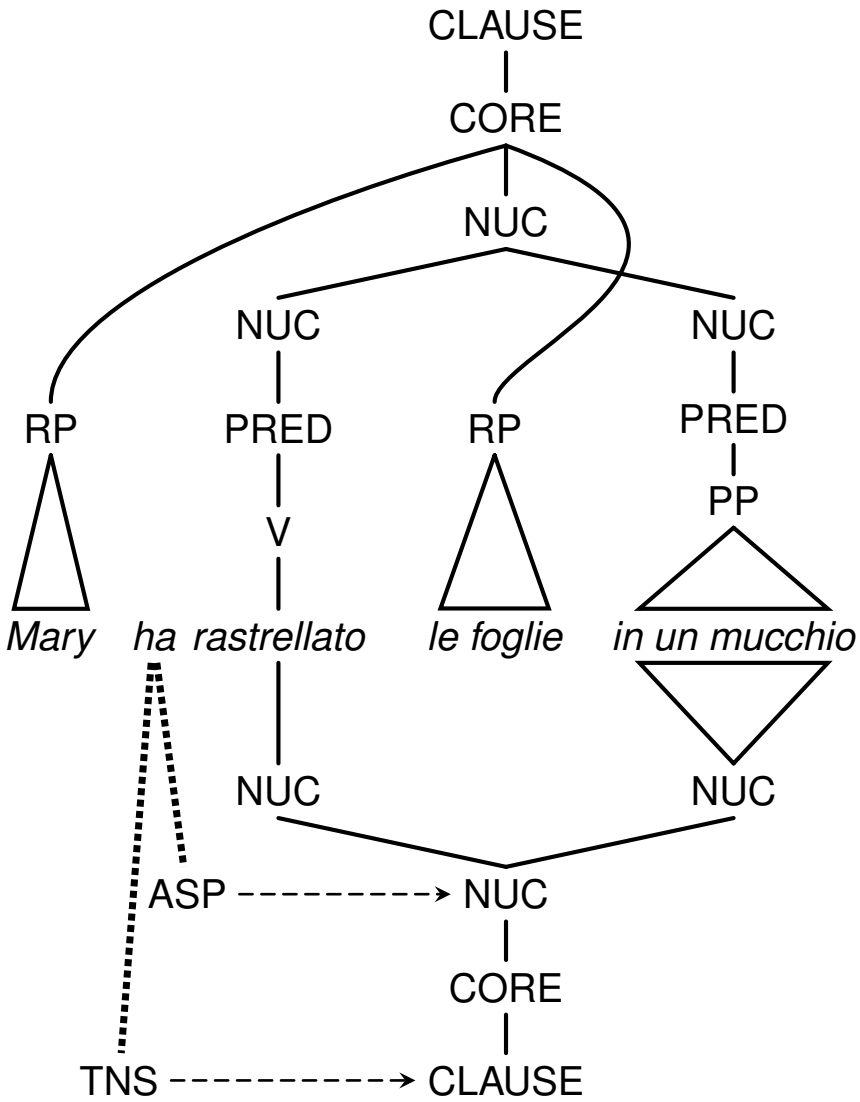
Syntactic representation

Argument for nuclear cosubordination:

Aspectual operators cannot take scope over the nuclei separately.

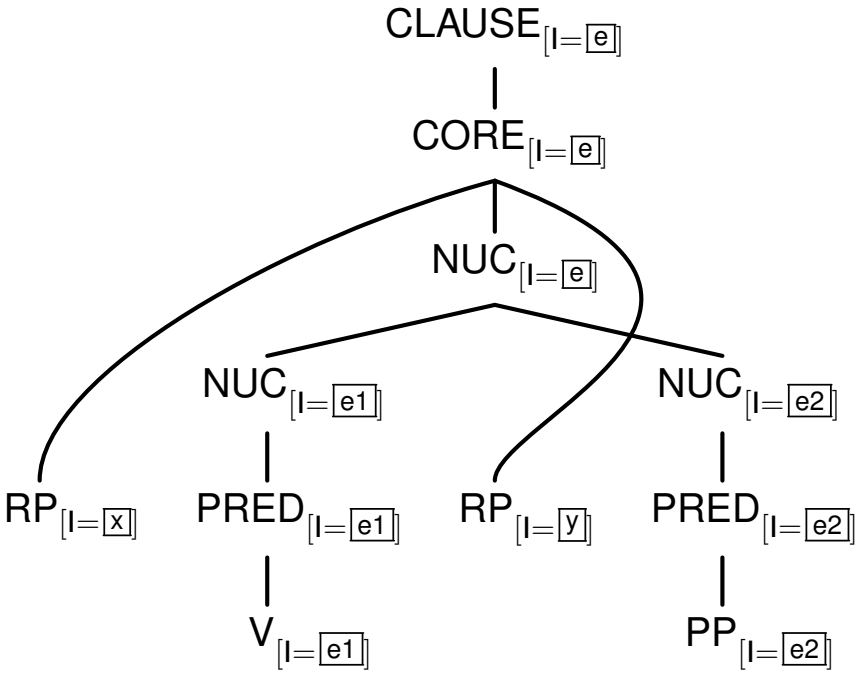
→ There is a single nuclear level to which the operators apply.

→ [NUC [NUC ...][NUC ...]]



Constructional schemas

Strong PP resultative construction in English (German, etc.):



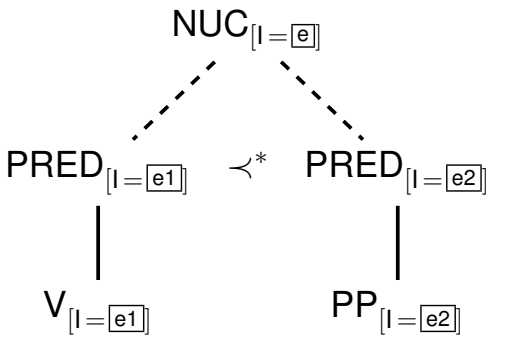
$$\boxed{e}\begin{bmatrix} \textit{causation} \\ \text{CAUSE} \quad \boxed{e1}\begin{bmatrix}\text{EFFECTOR} \quad \boxed{x}\end{bmatrix} \\ \text{EFFECT} \quad \boxed{e2}\begin{bmatrix}\textit{change-of-state} \\ \text{RESULT} \quad \begin{bmatrix}\textit{state} \\ \text{PATIENT} \quad \boxed{y}\end{bmatrix}\end{bmatrix} \\ \text{ACTOR} \quad \boxed{x} \\ \text{UNDERGOER} \quad \boxed{y}\end{bmatrix}$$

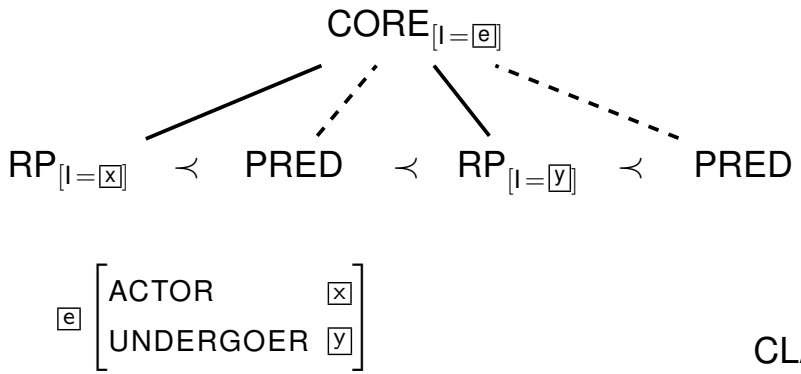
Locational variant (similar to adjectival resultatives):

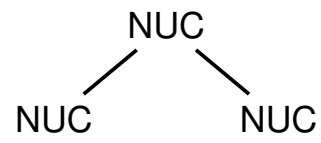
$$\boxed{e}\begin{bmatrix}\text{EFFECT} \quad \begin{bmatrix}\text{RESULT} \quad \boxed{e2}\begin{bmatrix}\textit{state} \\ \text{PATIENT} \quad \boxed{y}\end{bmatrix}\end{bmatrix}\end{bmatrix}$$

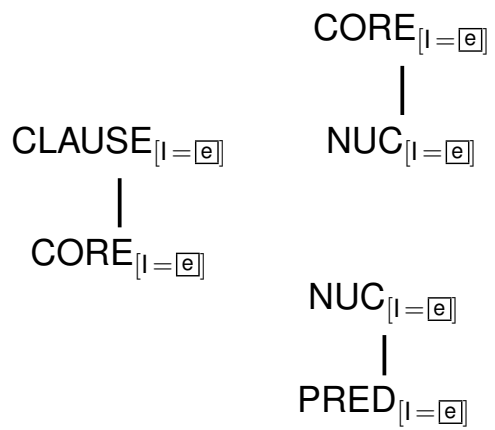
Constructional schemas

Strong PP resultative construction, decomposed:









change-of-state $\preceq$ RESULT : *state*

state $\preceq$ PATIENT : $\top$

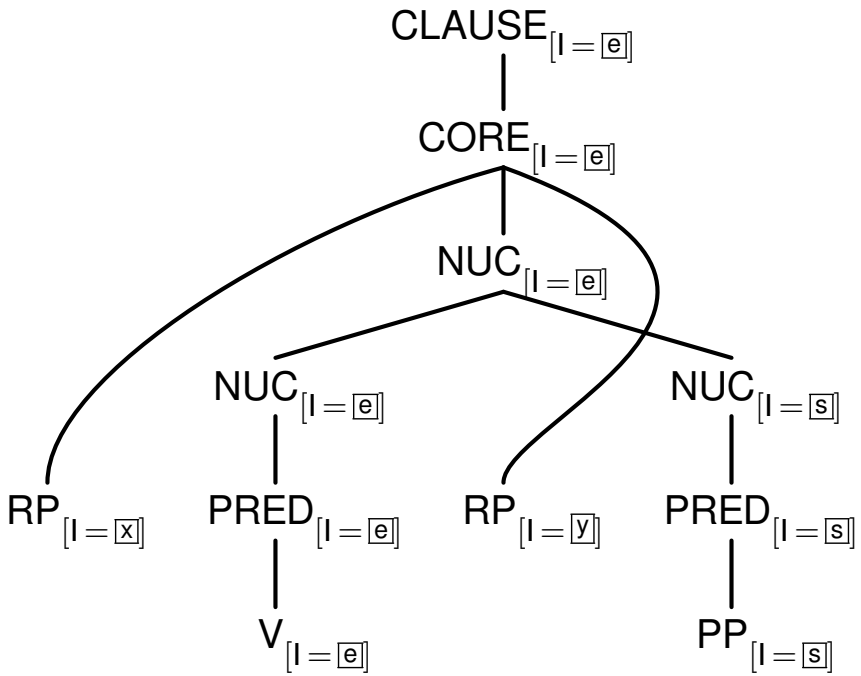
CAUSE EFFECTOR : $\top$ $\preceq$ CAUSE EFFECTOR $\doteq$ ACTOR

EFFECT RESULT PATIENT : $\top$ $\preceq$ EFFECT RESULT PATIENT $\doteq$ UNDERGOER

Basic idea: Define constructional schemas by means of tree and frame descriptions in a modular way. [cf. Kallmeyer & Osswald 2013]

Constructional schemas

Weak PP resultative construction in Italian (English, etc.)



$$\boxed{e}\begin{bmatrix} \textit{bounded-event} \\ \text{FINAL} \ \boxed{s}\begin{bmatrix}\textit{stage} \\ \text{THEME} \ \boxed{y}\end{bmatrix} \\ \text{ACTOR} \ \boxed{x} \\ \text{UNDERGOER} \ \boxed{y}\end{bmatrix}$$

Idea/to do: The incremental change of the undergoer expressed by the verb is enriched with a bounded scalar structure by the constructional schema; the PP characterizes the final stage of the undergoer on that scale.

Some further topics

Directional and locational prepositions

- Consequence of the fact that Italian has no “proper” directional preposition like English *to*. [cf. Folli & Ramchand 2005]
- Decompositional representation of complex prepositions such as *onto* and *into* into directional (confinal) and locational components. [≈ Kracht 2006]

Interaction with related typological differences

- Interrelation with the lexical and syntactic encoding of active and causative accomplishments in general.
- Interrelation with Talmy’s verb vs. satellite framing distinction and the more recent refinements thereof.

Thank you very much
for your attention!

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