

Non-sentential utterances (NSU) in dialog

Silvie Cinková (CU)

Companions Semantic Representation and
Dialog Interfacing Workshop

Edinburgh, March 5, 2008

This work was funded in part by the Companions project (www.companions-project.org) sponsored by the European Commission as part of the Information Society Technologies (IST) programme under EC grant number IST-FP6-034434.

Non-sentential utterances (NSU)

■ phrases (NP, PP, ADVP, ADJP)

- Me.*
- At 5 o'clock.*
- Blue.*
- With Mary.*
- How nice!*
- Sure.*

■ interjections

- Yeah.*
- Mhm.*
- Oh, no!*

■ interjections attached to phrases

- No, Billy.*
- Oh, sure.*

Non-sentential utterances (NSU)

■ subordinate clause without main clause

- *If he goes with me.*
- *Not as long as I'm asleep.*
- *Skiing.*

■ phrase combinations in coordination or apposition

- *Me and Mary.*
- *With Mary in the morning or shopping at Tesco.*
- *And coordinator.*
- *Or without.*



TR instruments available

- syntactic dependency
- semantic labeling
- morphosyntactic features (from a-layer)
- valency
- grammatical coreference
- textual coreference
- ellipsis restoration
- topic-focus articulation

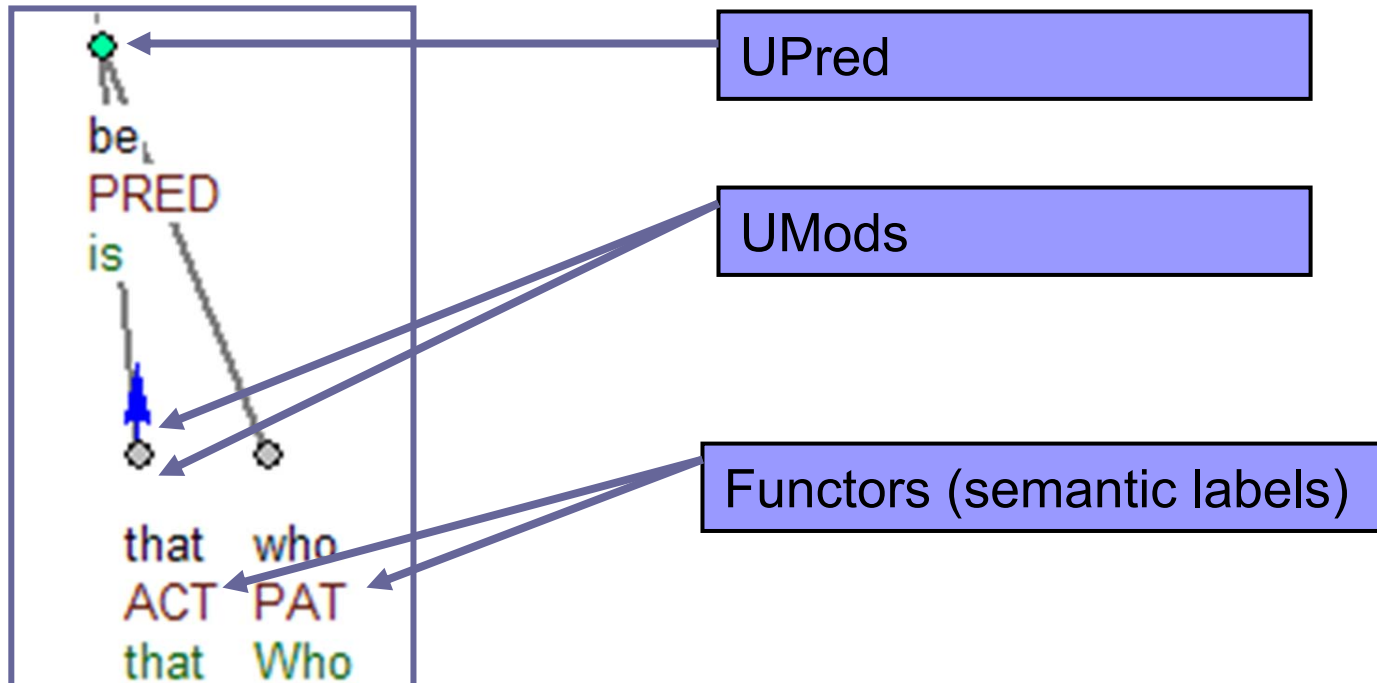
Utterance-response pair

utterance U

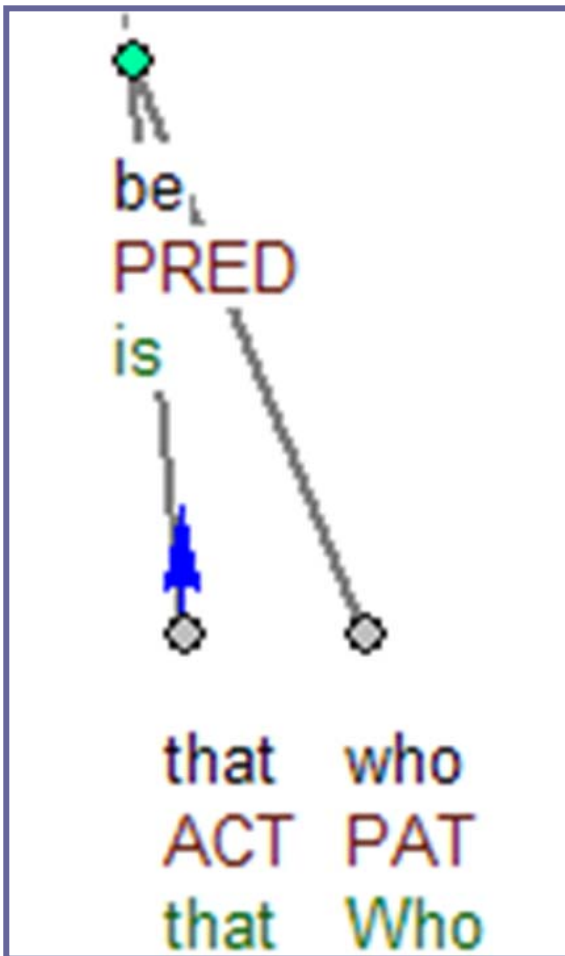
response NSU

"Who's that?"

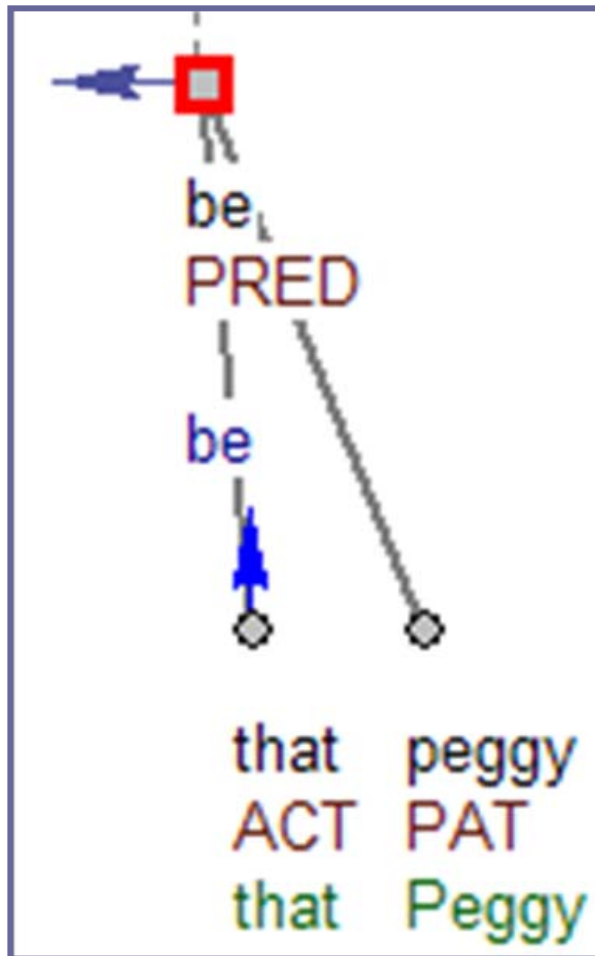
"Peggy."



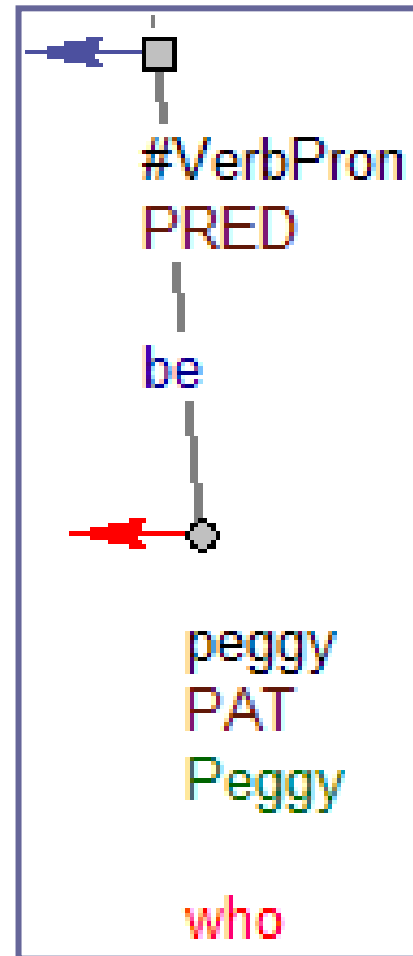
Utterance-response pair



Who's that?
[Peggy.]

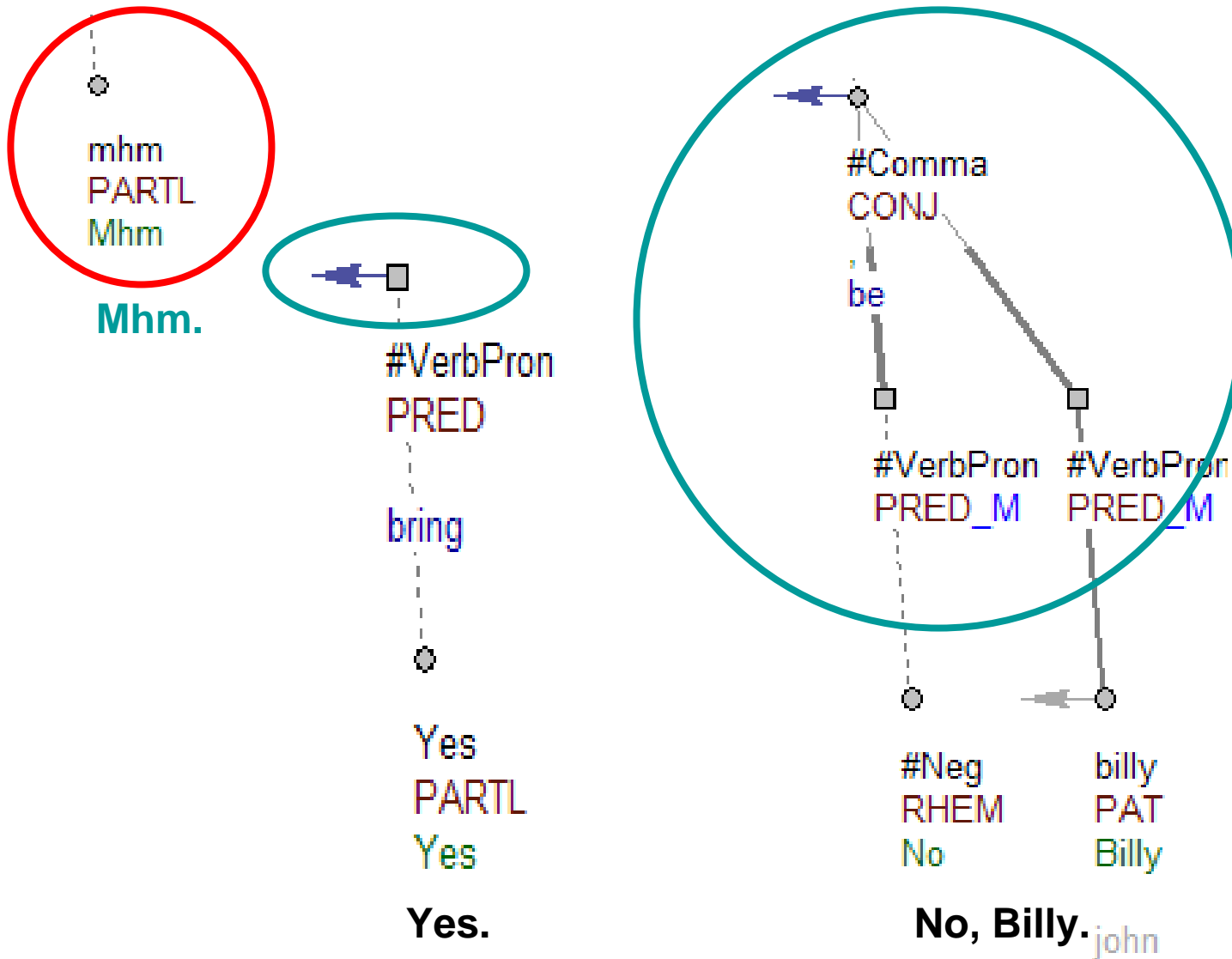


("That is Peggy").

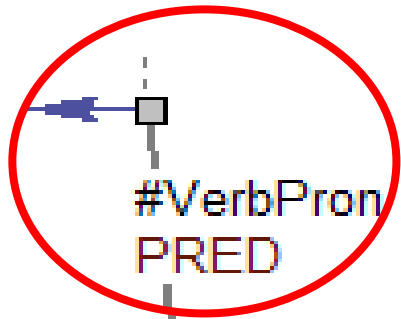


Peggy.

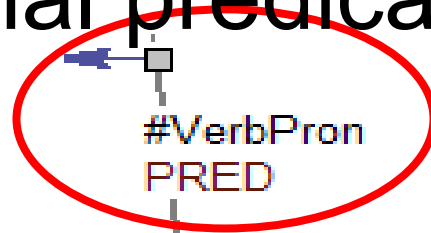
Predicate with interjections



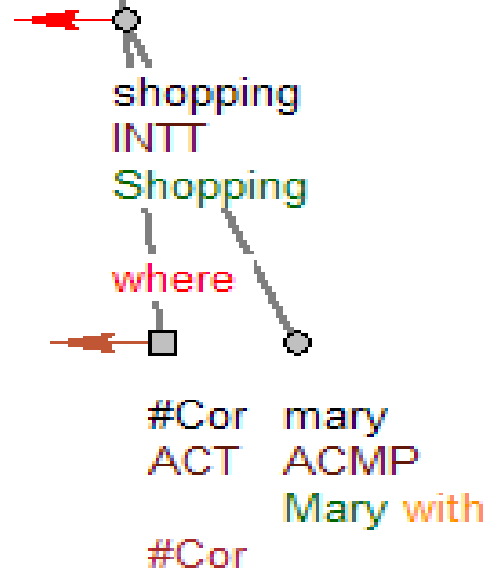
Coreferential predicate



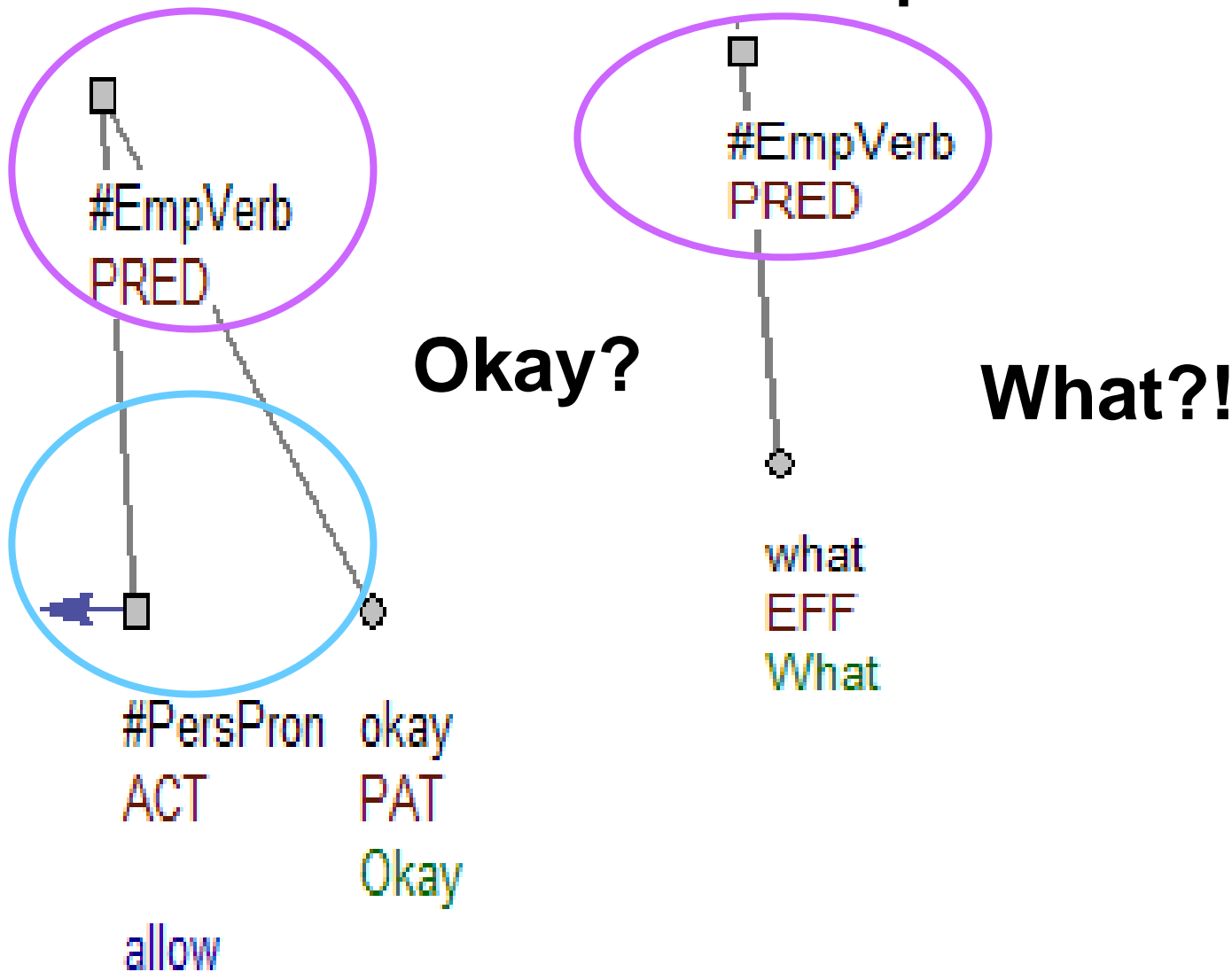
Two students?



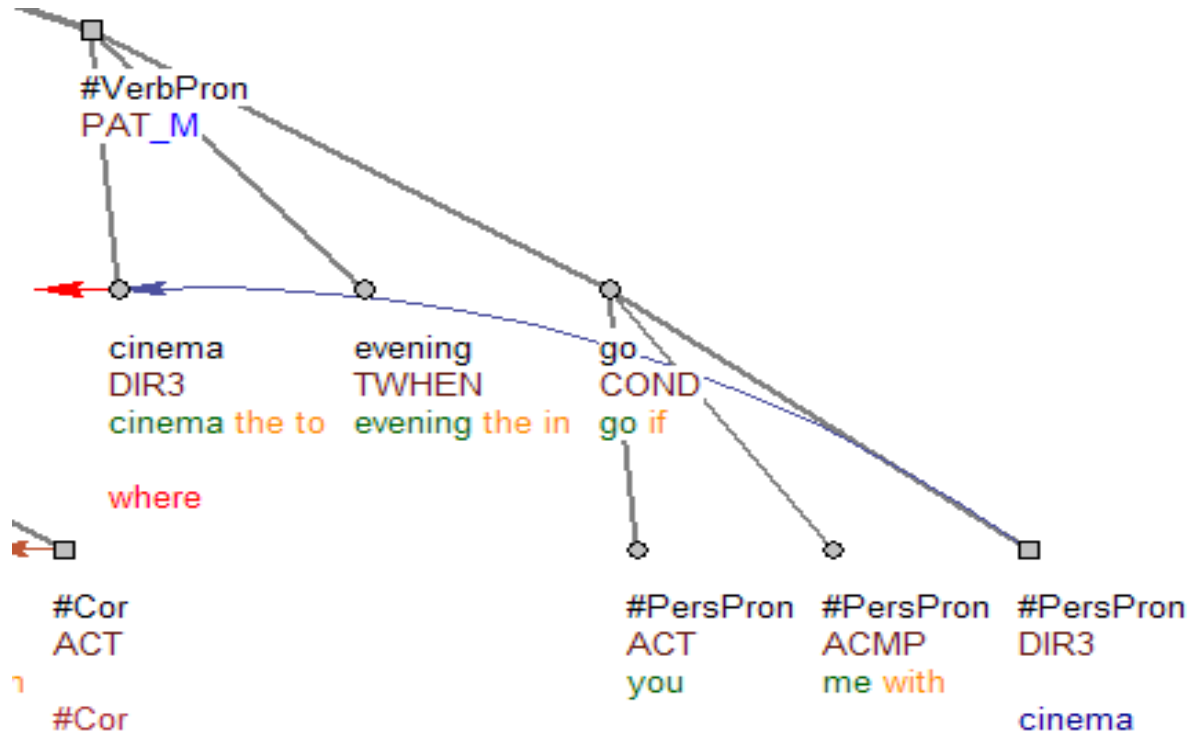
Shopping with Mary.



Non-coreferential predicate

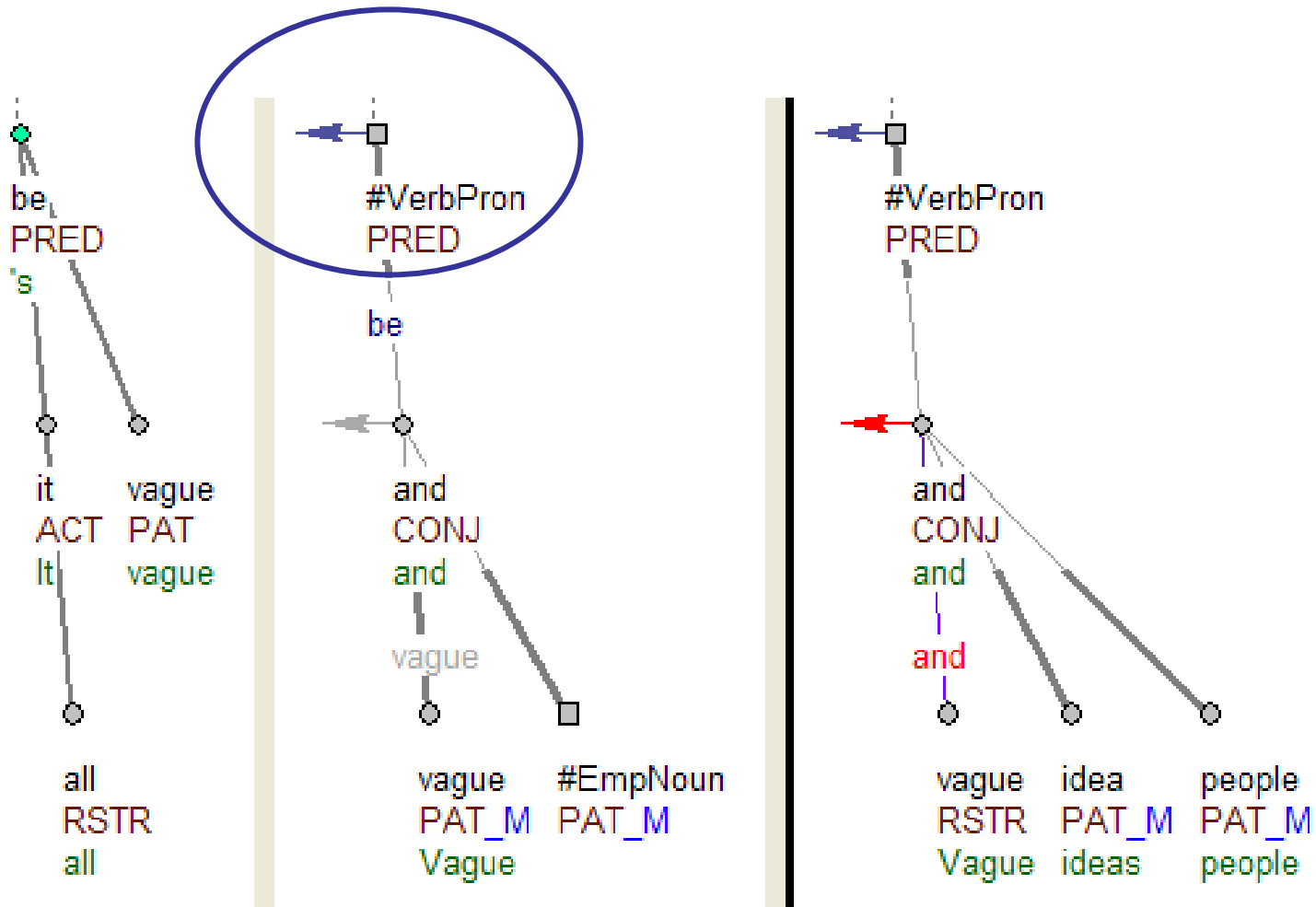


NSU with a subordinate clause



To the cinema in the evening if you go with me.





Restored predicate in the antecedent



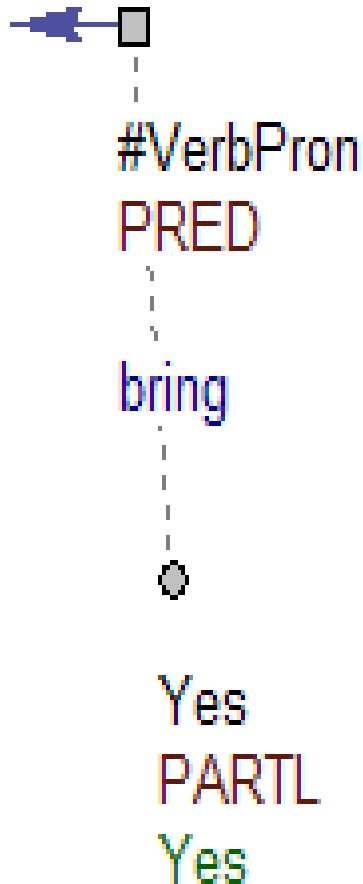
A: It's all vague. B: Vague and?

A: Vague ideas and people.

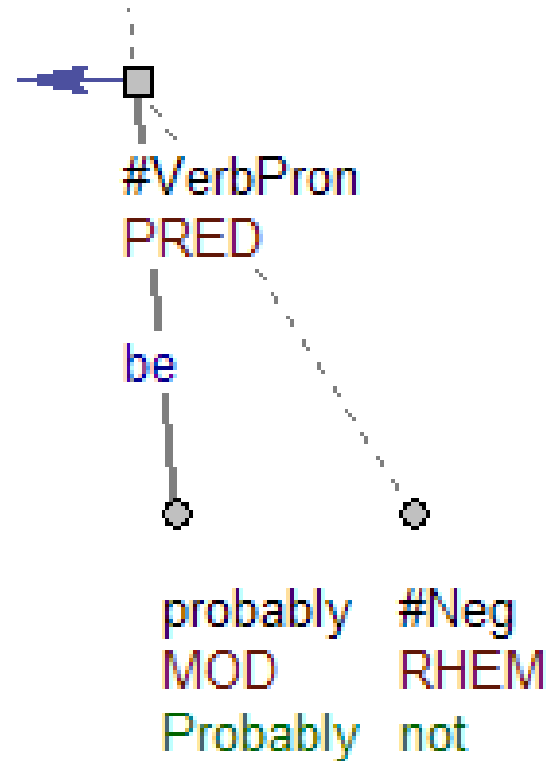
NSUMods versus UMods

- attribute: response_type
- values:
 - overrules 
 - bridging 
 - wh-path 
 - other 
- form: reference (arrow) to antecedent node

Non-conflicting Modifier addition

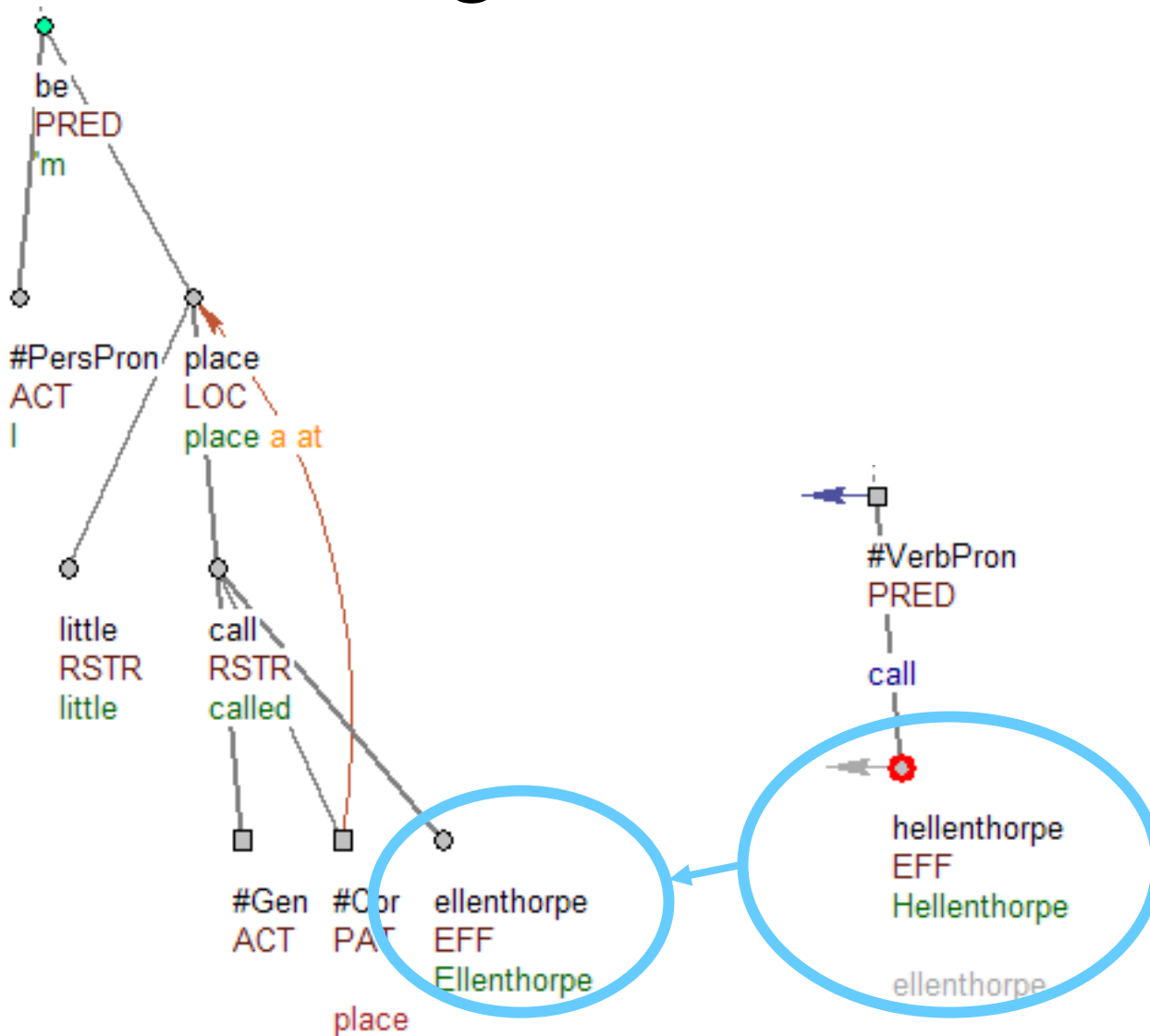


Yes [I brought the book].



[It will be] probably not
[worth getting].

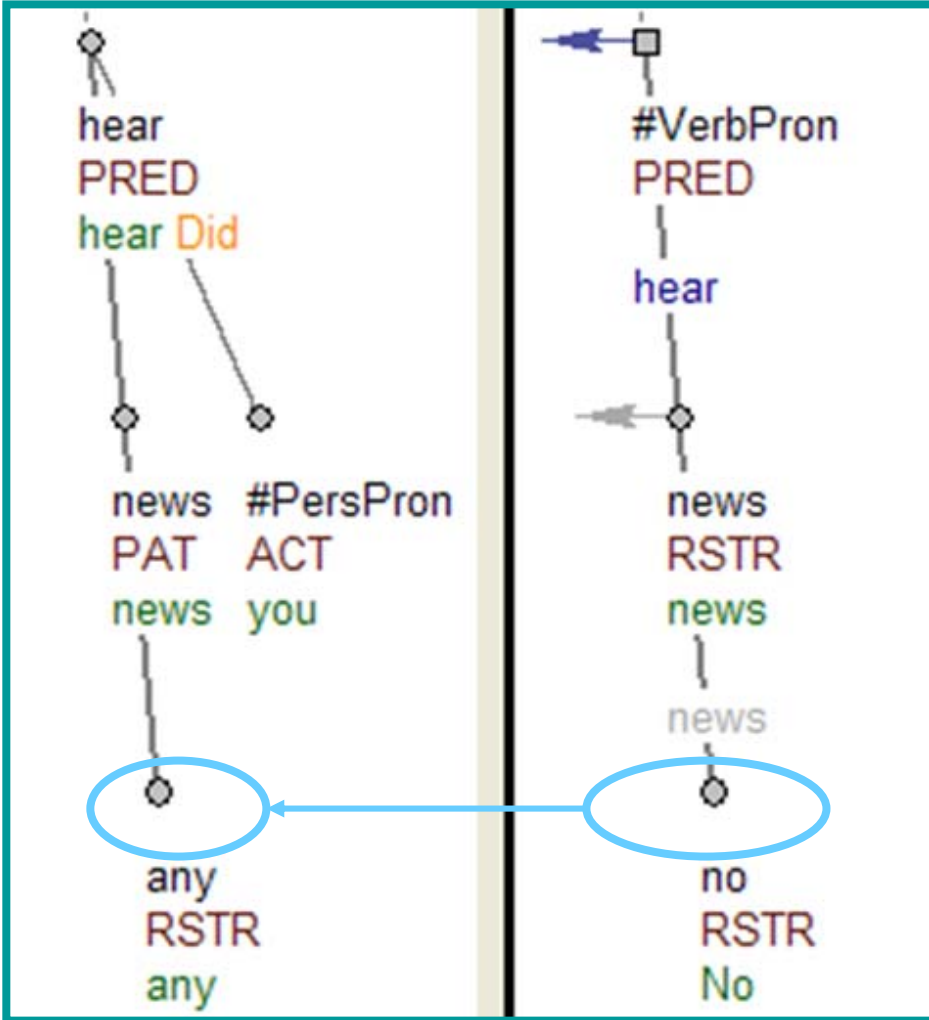
Overruling with a different Mod



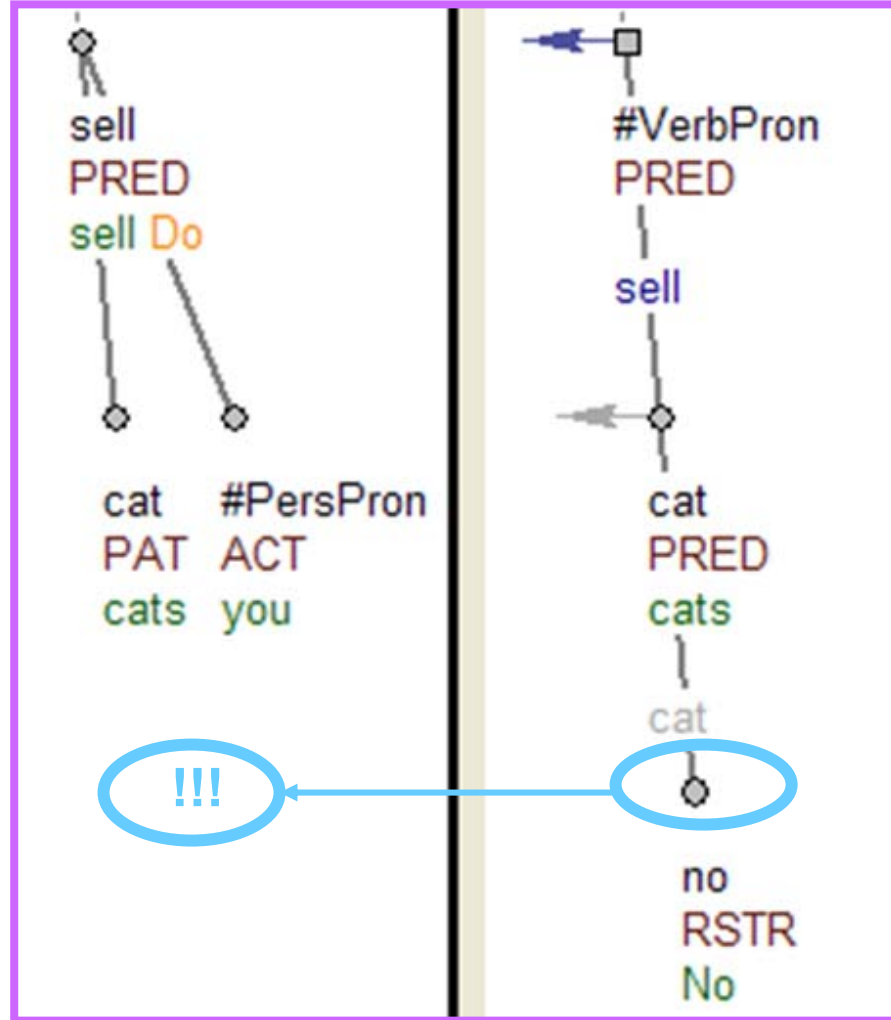
I'm at a little place called Ellenthorpe.

Hellenthorpe.

Why highest common node – 1:0

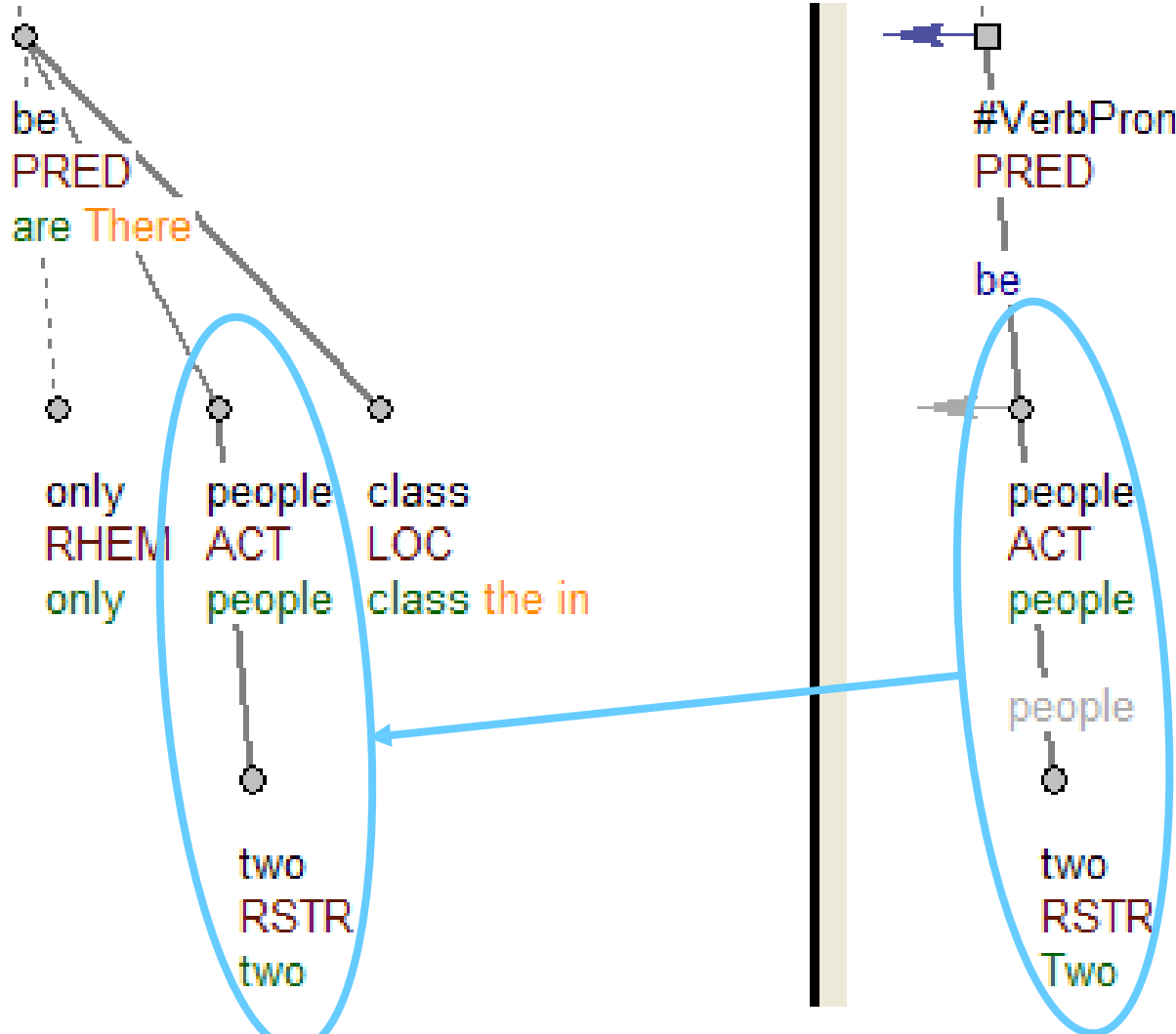


A: Did you hear any news?
 B: No news.



X: Do you sell cats?
 Y: No cats.

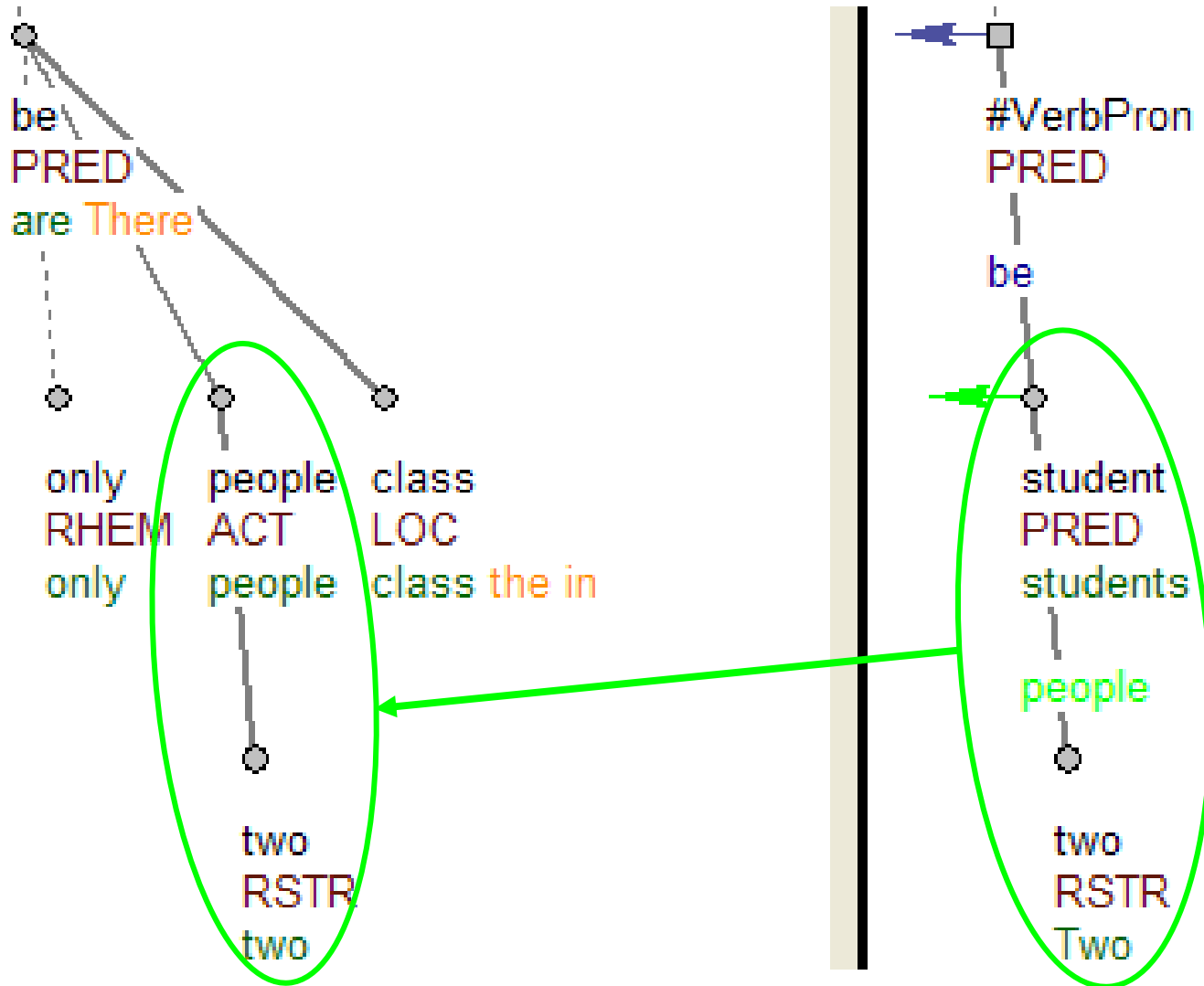
OVERRULING BY AN IDENTICAL MODIFIER



A: There are only two people in the class.

B: Two people?

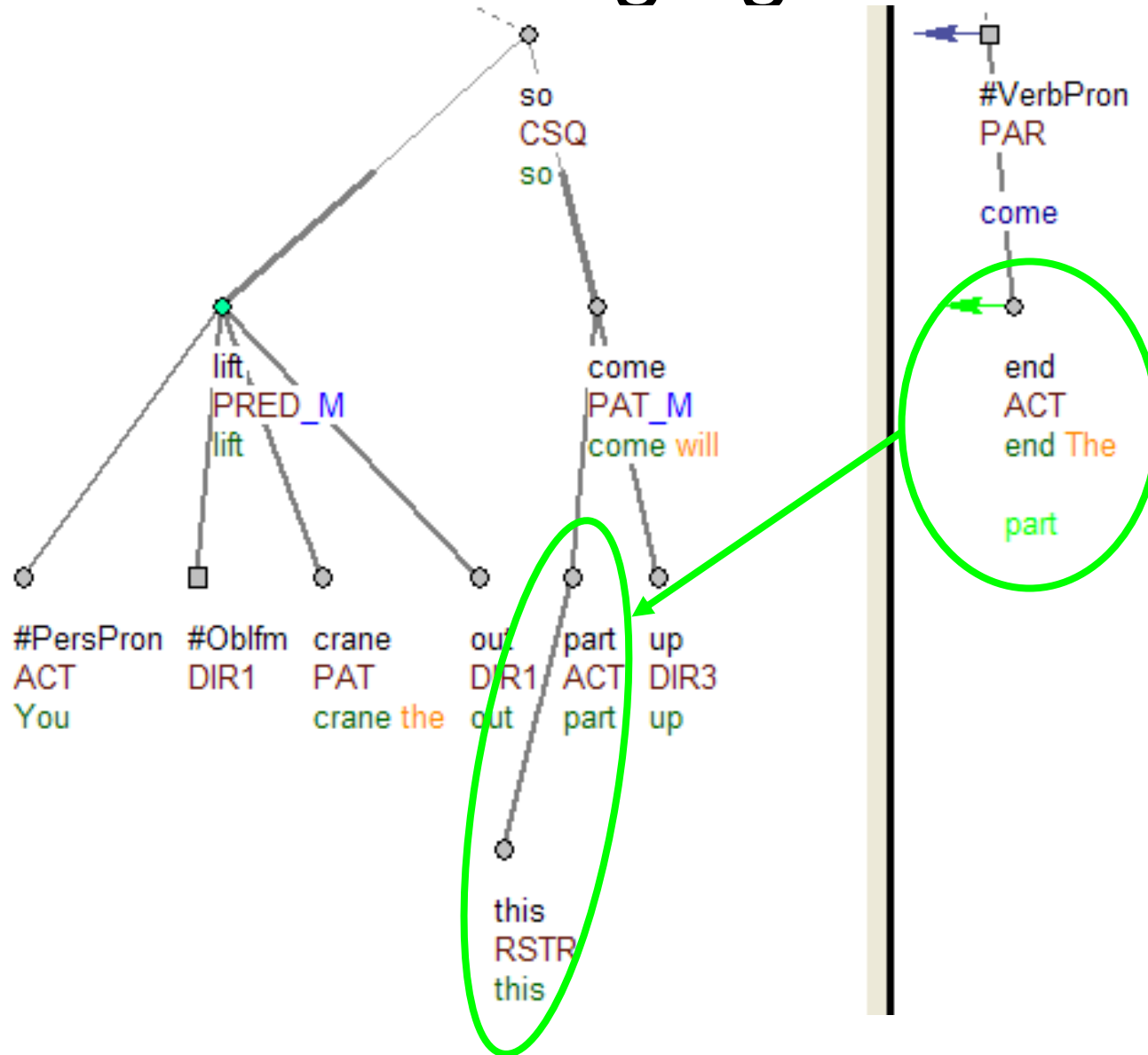
Bridging



There are only two people in the class.

Two students?

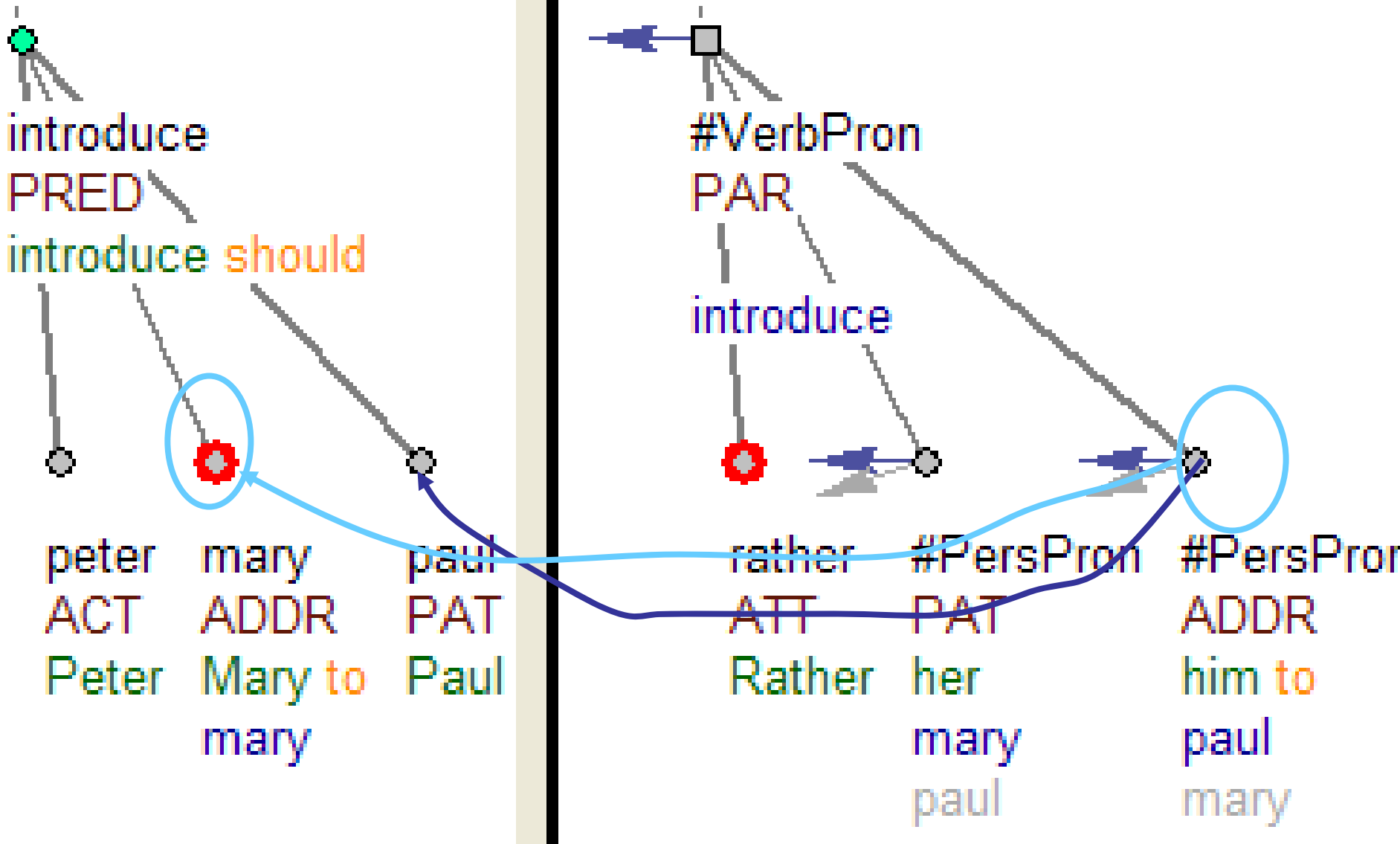
Bridging



A: You lift the crane out, so this part will come up.

B: The end?

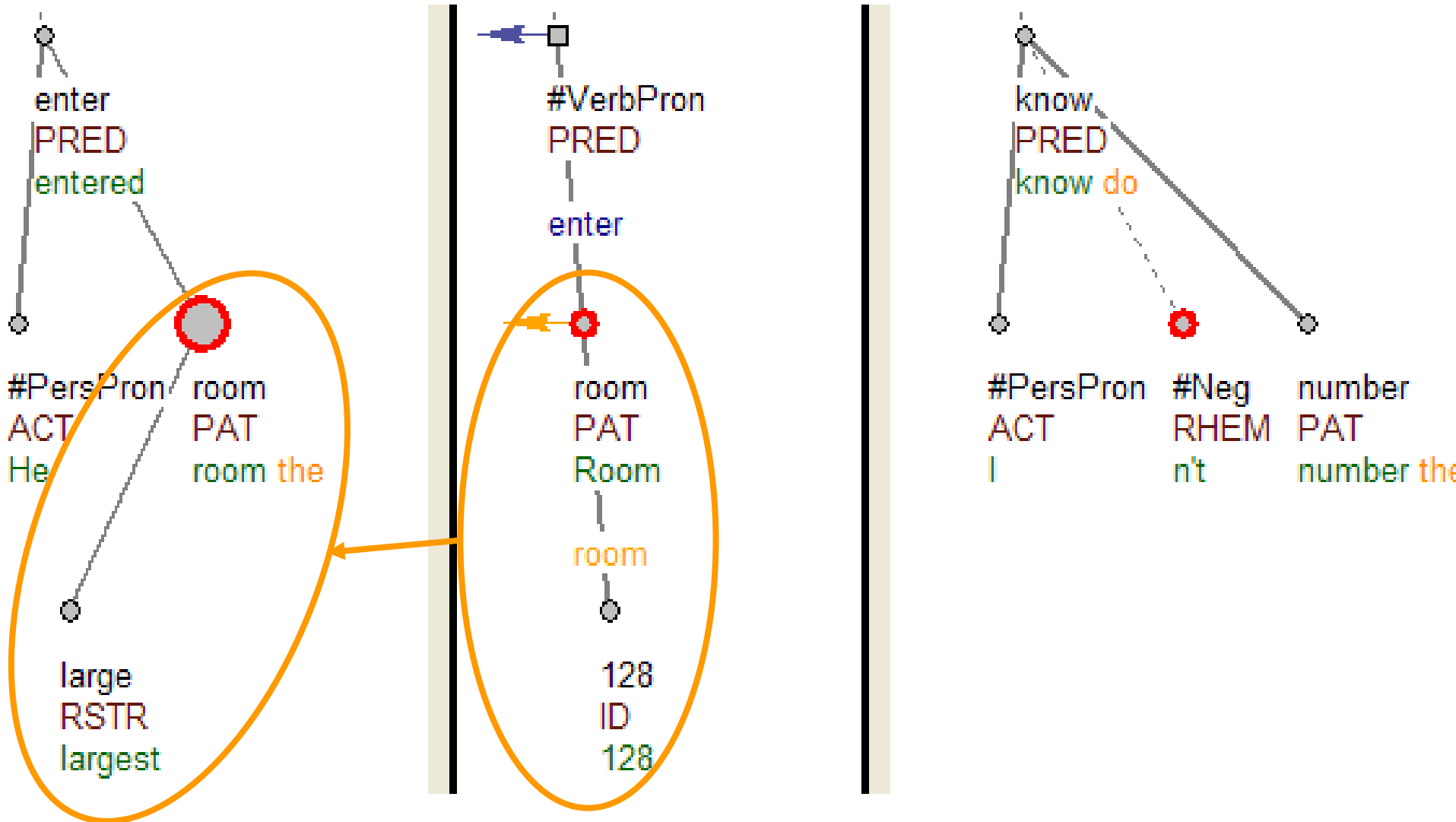
Textual coreference vs. overruling



A: Peter should introduce Paul to Mary.

B: Rather her to him.

Other

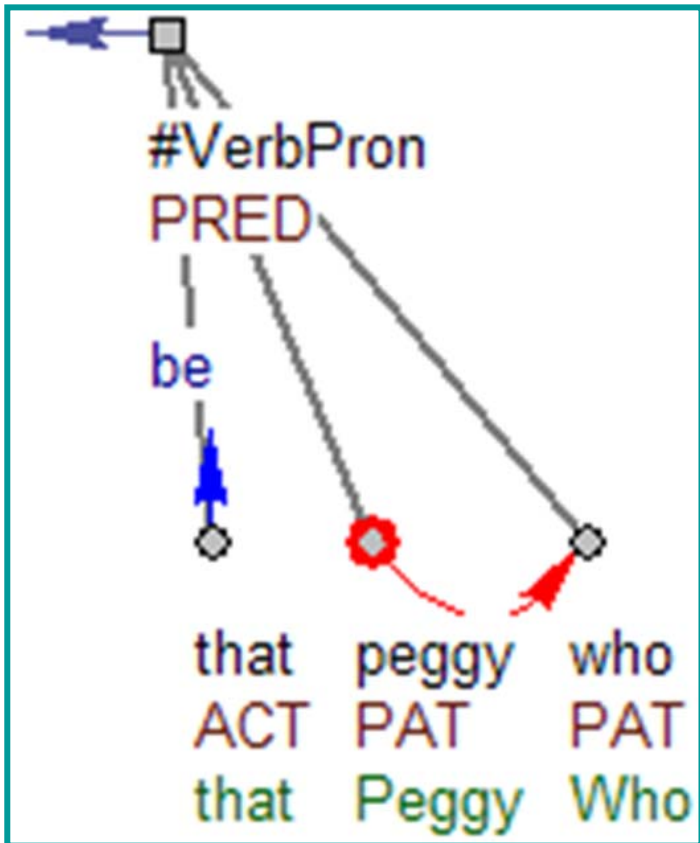


A: He entered the largest room.

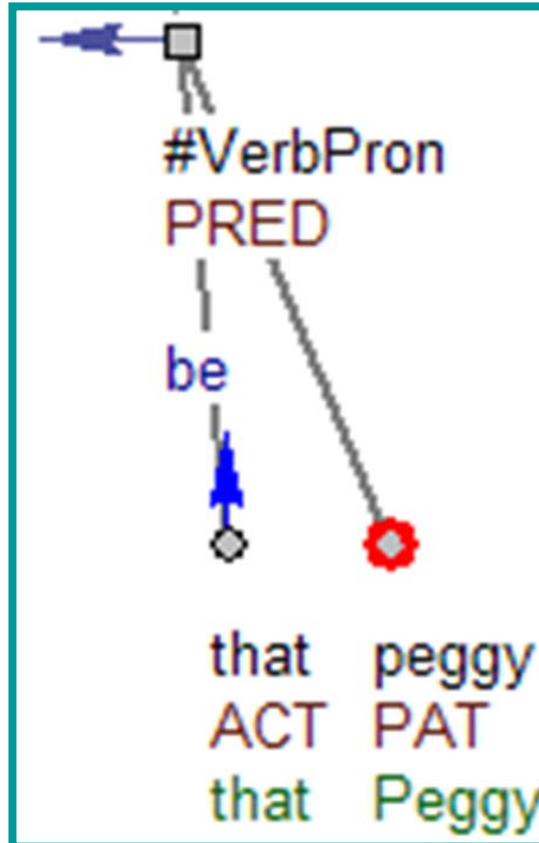
B: Room 128?

A: I don't know the number.

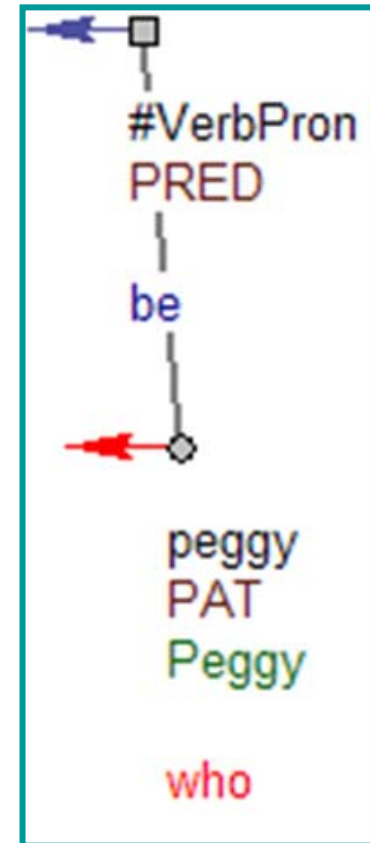
Wh-path



"That is Peggy-who"



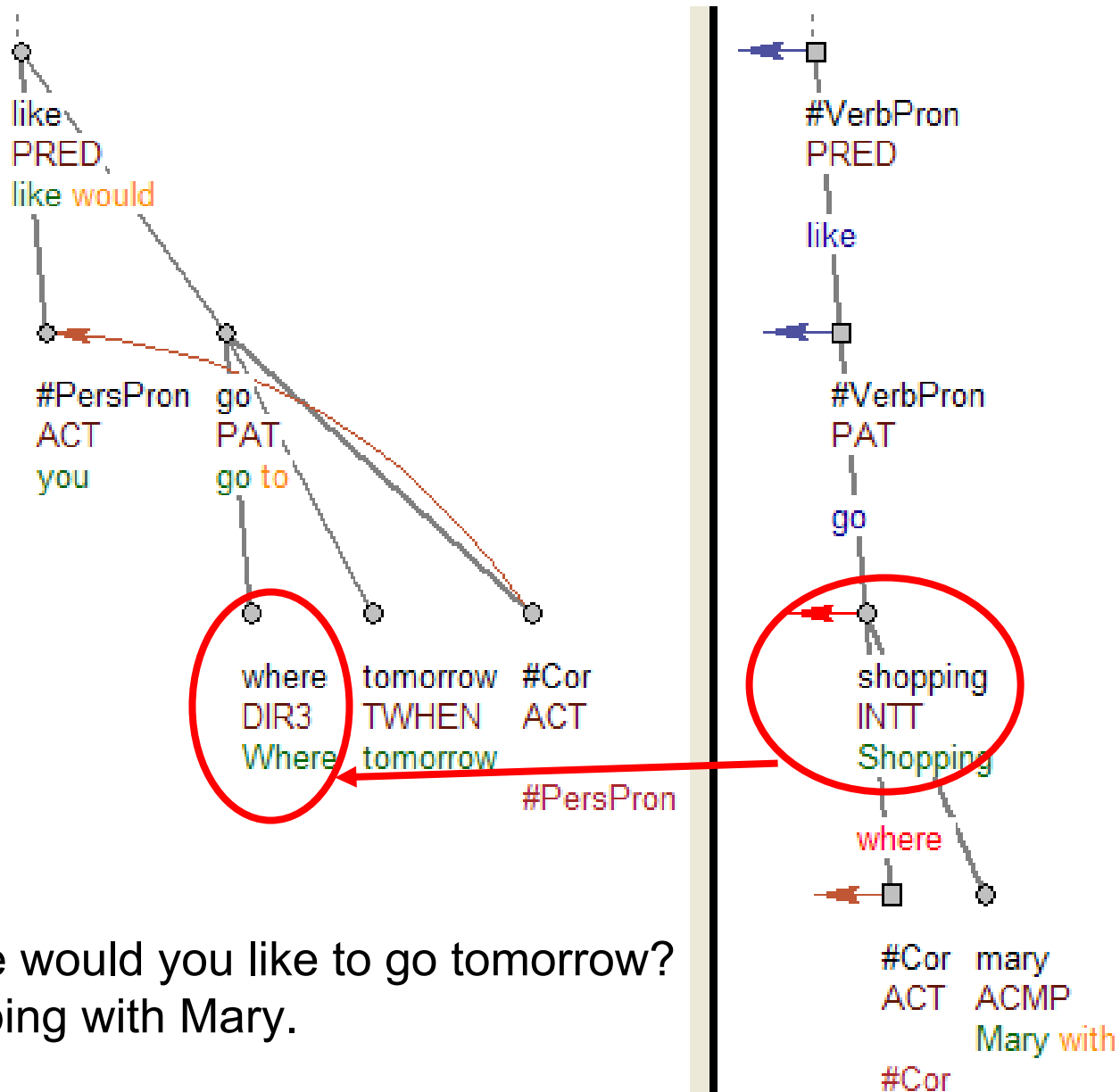
"That is Peggy."



"Peggy."

Wh-path - different functor matches

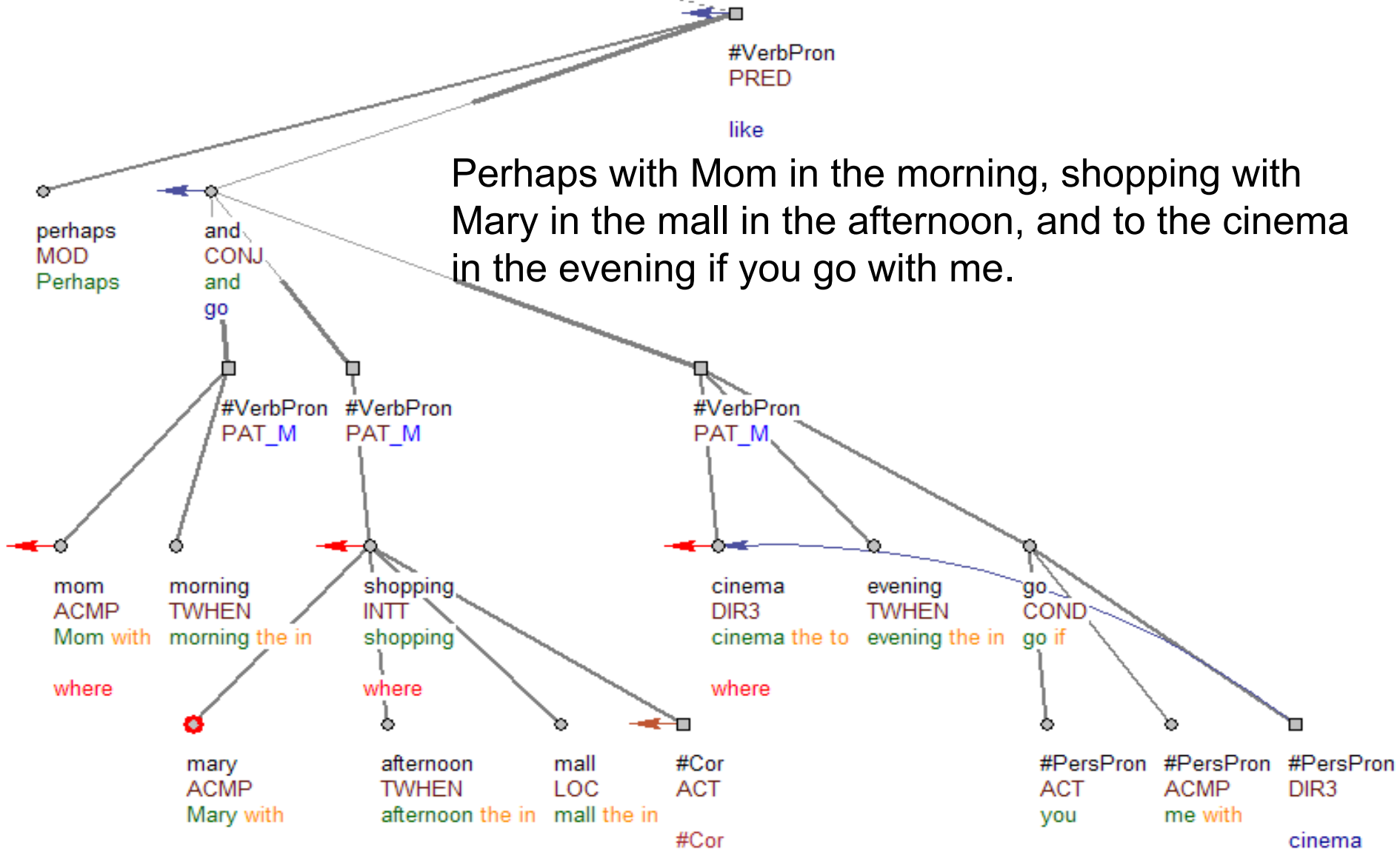
- up to the annotator
- we expect regular alternation patterns



Where would you like to go tomorrow?
Shopping with Mary.

Where would you like to go tomorrow?

SEnglishT-x-s28
root



Wh-path vs. overruling

- wh-word in the antecedent utterance:

– *Who is that?*

– *John.*

wh-path

- "sluice":

– *I want it tomorrow.*

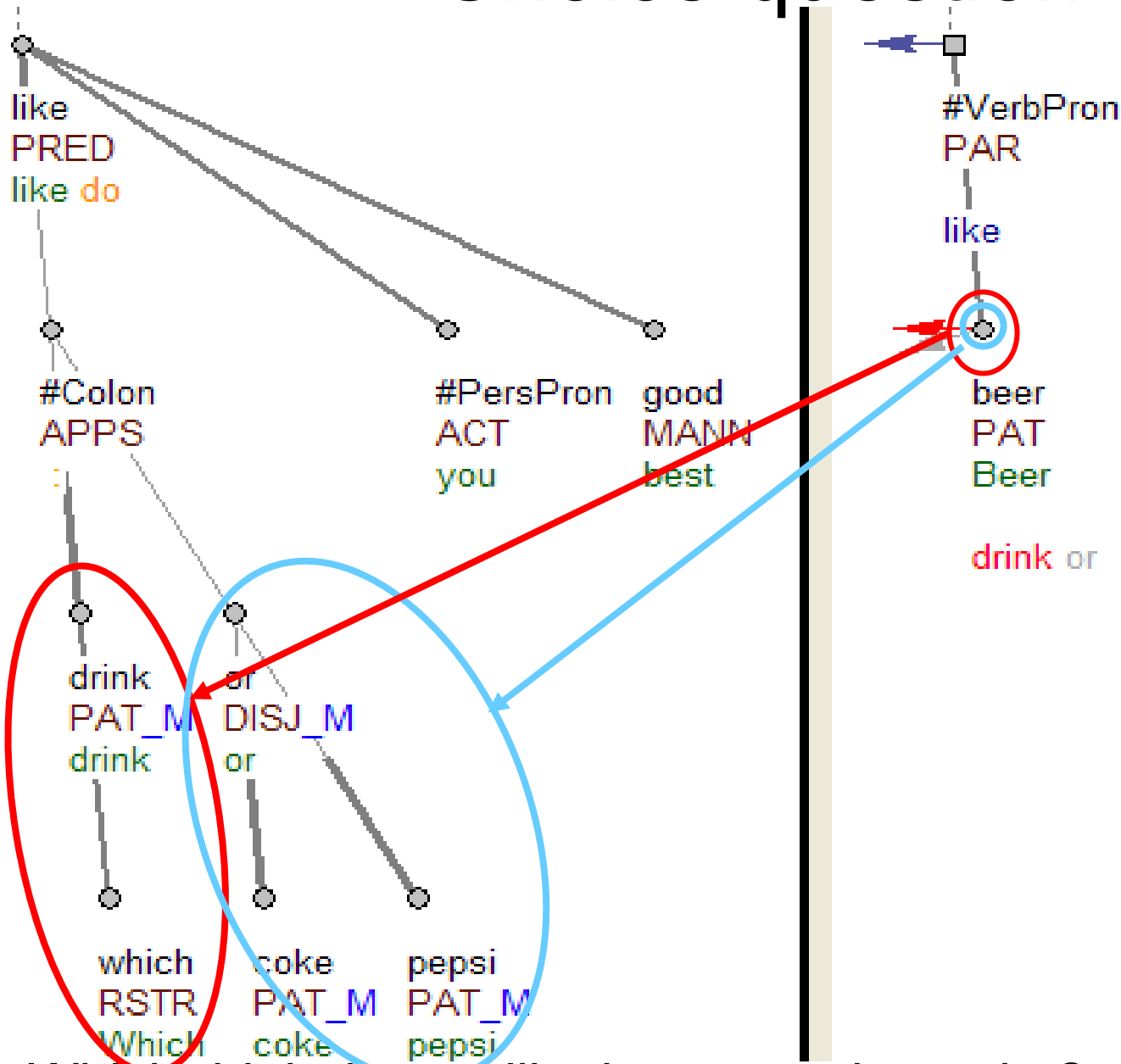
– *When?*

– *I have missed it.*

– *What?!*

overruling

Choice question



A: Which drink do you like best: pepsi or coke?

B: Beer.

Summary

- U-NSU pairs
- NSU inherits the predicate of U (coreference)
- NSU inherits all modifiers of U
- NSU's own modifiers overrule the inherited
 - overrule
 - bridging
 - wh-path
 - other

References

- Raquel Fernández, Jonathan Ginzburg, and Shalom Lappin (2007): *Classifying Non-Sentential Utterances in Dialogue: A Machine Learning Approach*. Computational Linguistics, Volume 33, Nr. 3. MIT Press for the Association for Computational Linguistics
- Eva Hajičová (ed) (1995): Eva Hajičová (ed.), *Text-And-Inference-Based Approach to Question Answering*, Prague, 1995