Continuations for Comparatives

Todd Snider (Cornell University, Linguistics)

PLC 39

Contact Information

- Web: http://conf.ling.cornell.edu/tsnider
- Email: tns35@cornell.edu

Overview

I use continuations to model clausal comparatives like (1):

(1) Mary is 6″ taller than Bill is wide.

- I define continuation-friendly operators for the comparative and a scoping degree operator
- This derives the right truth conditions without QR or LF movement

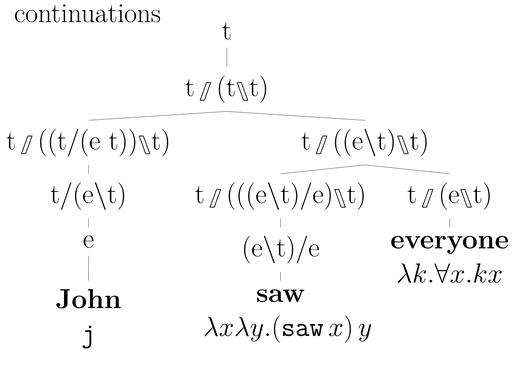
Continuations

- Continuations are type-lifters for scope-taking
- Barker and Shan (2014) use them for quantifiers
- Behave as some type locally, but take scope
- For example, a generalized quantifier, rather than being type $t/(e\backslash t)$, is expressed with type:

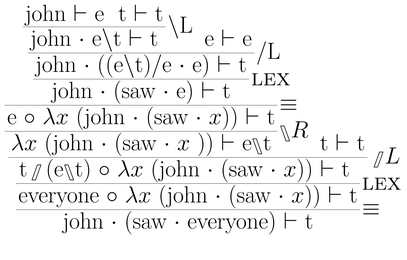
$$\mathrm{t} \mathbin{/\!\!/} (\mathrm{e} \mathbin{\backslash\!\!\backslash} \mathrm{t})$$

- local type, acts like an e
- takes scope at t
- returns a t

- Other words are lifted to combine with continuations



- Or, in a derivation:



Movement Analysis

- Movement accounts like Heim 2000 require two post-surface movements before interpretation

1. Move the comparative standard before the adjective — Mary is [er than . . .] tall~~er than . . .~~
2. "*wh*-movement of a covert operator from the degree-argument position of an adjective... the trace [being] interpreted as a variable over degrees" (Heim 2000: 51) — ... than wh_1 Bill is t_1 wide

- For a sentence like (1), then, the following LF and truth conditions:

(2) $[\![\text{Mary is } 6'' \text{ [-er than [}wh_1 \text{ Bill is } t_1 \text{ wide]] tall}]\!] = \textsc{max}(\texttt{height}, m) \geq \textsc{max}(\texttt{width}, b) + 6''$

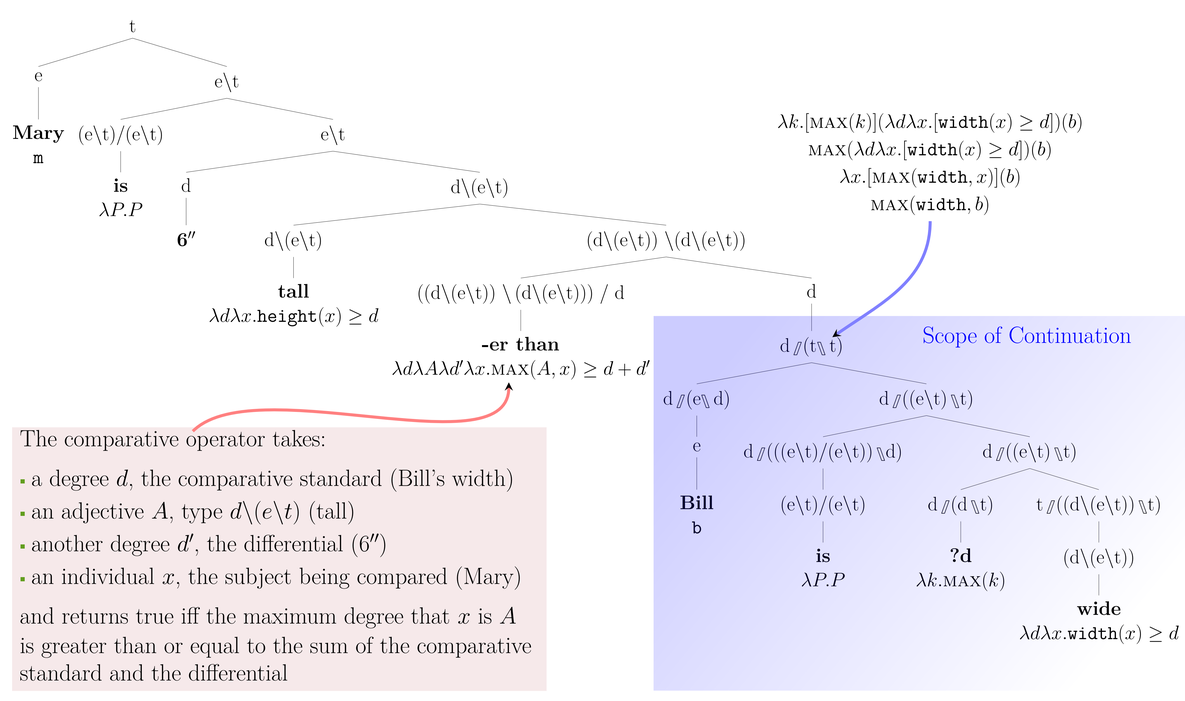
Moving to Continuations

I replace *wh*-movement with a scoping degree operator of type $(d \mathbin{/\!\!/} (d \mathbin{\backslash\!\!\backslash} t))$

acts locally like a *degree* — takes scope at t (*Bill is wide*) — returns a *degree*

getting the right truth conditions without movement.

A Full Derivation



The comparative operator takes:

- a degree d, the comparative standard (Bill's width)
- an adjective A, type $d\backslash(e\backslash t)$ (tall)
- another degree d', the differential (6″)
- an individual x, the subject being compared (Mary)

and returns true iff the maximum degree that x is A is greater than or equal to the sum of the comparative standard and the differential

- We get a much simpler LF and derive the right truth conditions:

(3) $[\![\text{Mary is } 6'' \text{ tall -er than Bill is ?d wide}]\!] = \textsc{max}(\texttt{height}, m) \geq \textsc{max}(\texttt{width}, b) + 6''$

- Equally compatible with an analysis that uses intervals rather than degrees

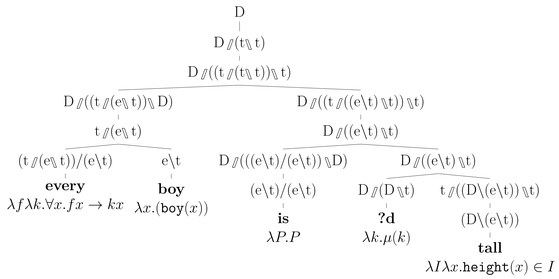
Scoping operator becomes type $(D \mathbin{/\!\!/} (D \mathbin{\backslash\!\!\backslash} t))$, uses μ instead of MAX

Scoping over Quantifiers

- Heim's MAX account requires a third type of (non-local) movement (e.g., of a Π operator) to handle quantified standards, as in (4):

(4) Mary is 6″ taller than every boy is.

- Because comparatives and quantifiers both use continuations, they interact without modification



- Still need the Heim-Kennedy constraint to prevent certain scope combinations, though. . .

Conclusion

- We can use continuations to handle comparatives without movement
- No additional mechanisms needed for scope interactions
- Compatible with a Containment Hypothesis denotation for the superlative *-est*
- Compatible with differential-modifying *exactly*, *less than*, *more than*, which change interpretations of MAX (Fleisher 2014)

Selected References

Chris Barker and Chung-Chieh Shan. *Continuations and Natural Language*. Oxford University Press, 2014.

Nicholas Fleisher. Comparing theories of quantifiers in than clauses: Lessons from downward-entailing differentials. Ms. University of Wisconsin-Milwaukee, 2014.

Irene Heim. Degree operators and scope. *Semantics and Linguistic Theory (SALT)*, volume 10. CLC Publications, 2000.

Acknowledgements

Thanks to Chris Barker, Miloje Despic, Molly Diesing, Mats Rooth, and the Cornell Semantics Group.