Presupposition projection as a scope phenomenon

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   - Karlos has a car. (presupposition)

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- How do presuppositions project in complex expressions?
  - The “projection problem” (Langendoen and Savin, 1971)

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- Presupposition triggers in the scopes of propositional attitude verbs

We are here

1. The satisfaction theory
2. A scopal account
3. Presupposition and propositional attitude verbs

Rough sketch of out it works

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  - Might amount to set intersection (of sets of worlds, assignments, …)

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  - *Karlos brought his car* $\rightsquigarrow$ *Karlos has a car*

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The proviso problem

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- But sometimes it shouldn't happen.

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     If α is a branching node and $\{\beta, \gamma\}$ the set of its daughter, then for any assignment a, α is in the domain of $[\![\cdot]\!]^a$ if both β and γ are, and $[\![\beta]\!]^a$ is a function whose domain contains $[\![\gamma]\!]^a$. In that case, $[\![\alpha]\!]^a = [\![\beta]\!]^a([\![\gamma]\!]^a)$.

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     - $\rightsquigarrow$ no presupposition ☺

A proviso problem crops up in this setting, as well.

Compositional semantics: a rudimentary analysis of conditionals

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     $[\![[[\textit{every dog}]_i \ \ [t_i \ \ \textit{slept}]]]\!]^g = [\![\textit{every dog}]\!]^g(\lambda x.[\![t_i \textit{slept}]\!]^{g[x/i]})$

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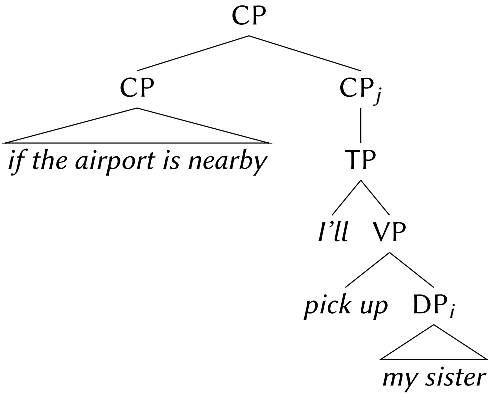
  - Used by Charlow (2020) to account for the exceptional scoping properties of indefinites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VP
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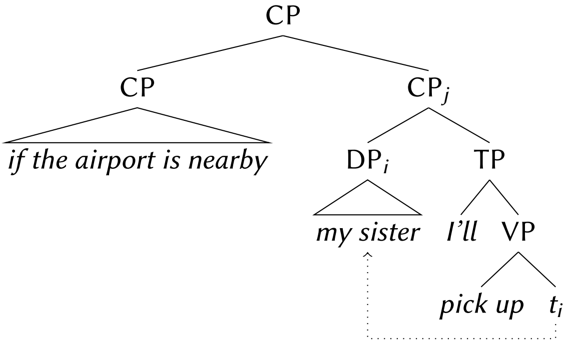
Back to conditionals: cyclic scope-taking



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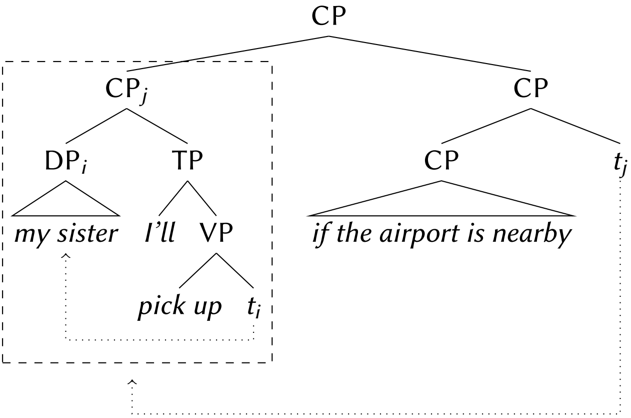

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Conclusion: a freer definition of the "Quantifier Raising" rule allows us to circumvent the proviso problem, provided…

- we have a non-compositional, static analysis of conditionals (and other filters)

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  - E.g., the type $e_{\#}$ is that of something which is either an individual (e.g., Karlos) or undefined (#).
  - This move allows us to treat partial functions as total; e.g., a partial function of type $e \to t$ is now a total function of type $e \to t_{\#}$ that maps the part of its domain on which it is not defined to #.

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A meaning for *if*:

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- $[\![\mathit{his}_i\ \mathit{car}]\!]^{w,g}$ (now of type $e_\#$)
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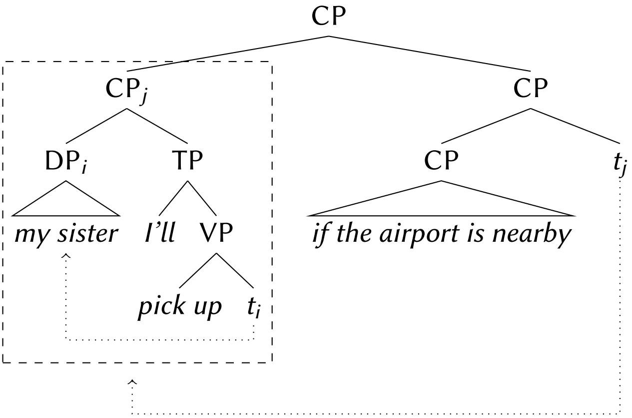
(Together, $(\cdot)^{\eta}$ and $(\cdot)^{\gg=}$ constitute a monad.)

Scoping out the consequent



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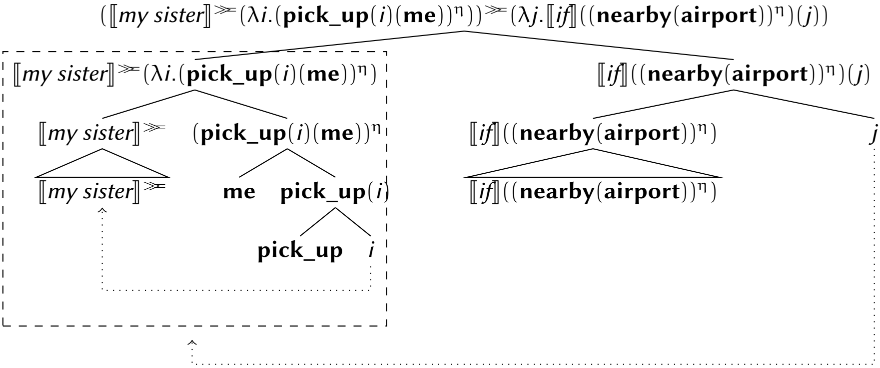

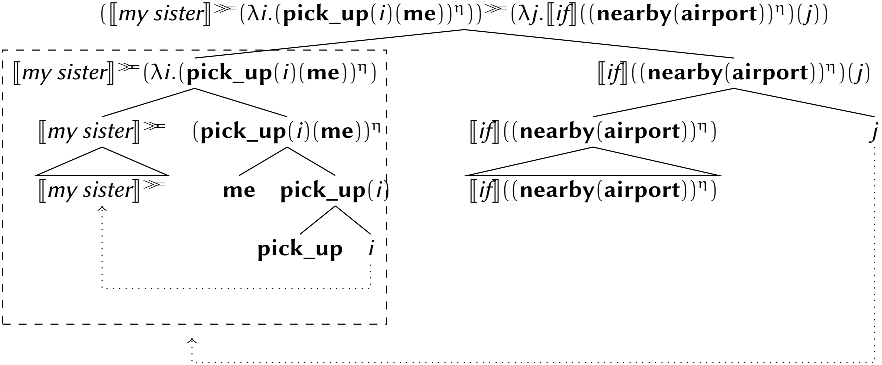

1 if I have a sister, and I pick her up if the airport is nearby
0 if I have a sister, the airport is nearby, and I don't pick her up
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Filtering…

For examples like

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we simply don't scope the consequent clause above the filter, allowing presupposition satisfaction to go through.

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- Introducing Maybe types allows the system to be fully compositional.
- The foregoing analysis of filters is static, but making it dynamic (more straightforwardly in line with Heim (1983)) is a matter of further enriching the types (as done by, e.g., Rothschild (2011)).

We are here

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- $[\![\textit{Karlos brought his car}]\!] =$

$$\lambda w^s. \begin{cases} 1 & \text{Karlos has a car and brought it} \\ 0 & \text{Karlos has a car and didn't bring it} \\ \# & \text{Karlos doesn't have a car} \end{cases}$$

Propositional attitude verbs

- $[\![\mathit{believes}]\!] = \lambda p^{s \to t_\#}, x^e, w^s.\forall w'^s : \mathbf{acc}_{w,x}(w') \Rightarrow p(w')$

$\Rightarrow$	$\top$	$\bot$	$\#$
$\top$	$\top$	$\bot$	$\#$
$\bot$	$\top$	$\top$	$\top$
$\#$	$\#$	$\#$	$\#$

$\{[\![\phi]\!]_{\mathcal{M},g'} \mid g[x]g'\}$	$[\![\ulcorner \forall x : \phi \urcorner]\!]_{\mathcal{M},g}$
$\{\top\}$	$\top$
$\{\bot\}$	$\bot$
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$\{\top, \bot\}$	$\bot$
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- Presupposition failure results if the presupposition fails to hold at some accessible world. (Inaccessible worlds don't matter.)

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   - $\lambda w^s.\forall w'^s : \mathbf{acc}_{w,\text{Ashley}}(w') \Rightarrow$
     $$\begin{cases} 1 & \text{Ashley has a car, and it's in the lot in} w' \\ 0 & \text{Ashley has a car, and it's not in the lot in} \mathit{in} w' \\ \# & \text{Ashley doesn't have a car in} w' \end{cases}$$

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   - Defined at any world w such that
     $\forall w'^s : \mathbf{acc}_{w,\text{Ashley}} \Rightarrow$ Ashley has a car inw'

Out-scoping propositional attitude filters

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- $(\cdot)^{\gg=} : (s \rightarrow \alpha_{\#}) \rightarrow (\alpha \rightarrow s \rightarrow \beta_{\#}) \rightarrow s \rightarrow \beta_{\#}$ ('bind')
- $m^{\gg=} = \lambda f^{\alpha \rightarrow s \rightarrow \beta_{\#}}, w^{s}. \begin{cases} \# & m(w) = \# \\ f(a)(w) & m(w) = a \end{cases}$

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$$(\llbracket \textit{her car} \rrbracket^{\ggcurly} (\lambda i^e.(\lambda w^s.\mathbf{in}(\mathbf{lot})(i)(w))^\eta))^{\ggcurly}(\lambda j^{s\to t_\#}, w^s.\forall w'^s : \mathbf{acc}_{w,\text{Ashley}}(w') \Rightarrow j(w'))$$

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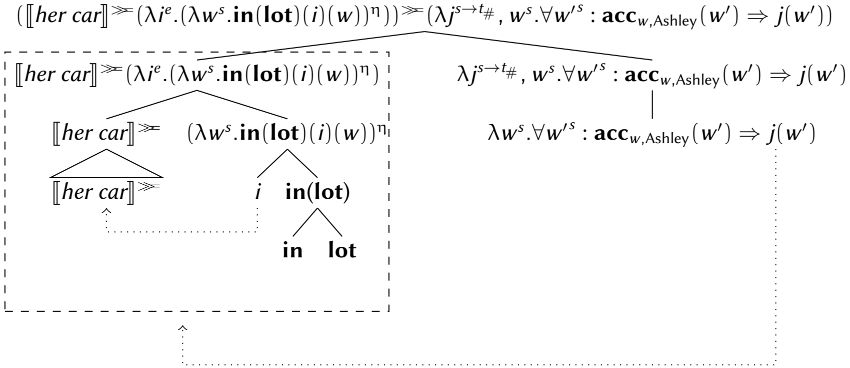

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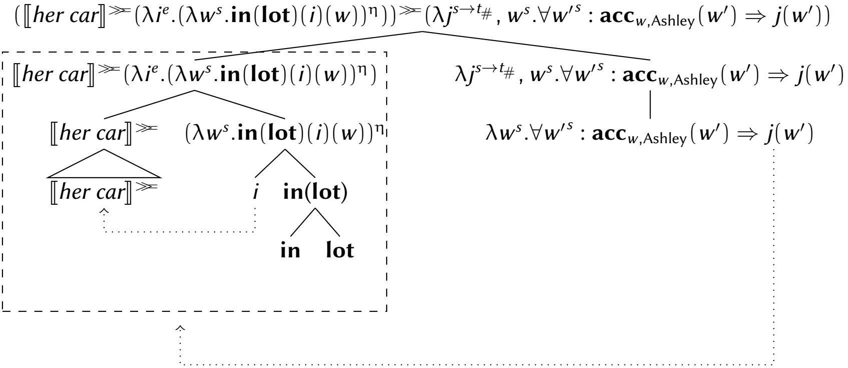

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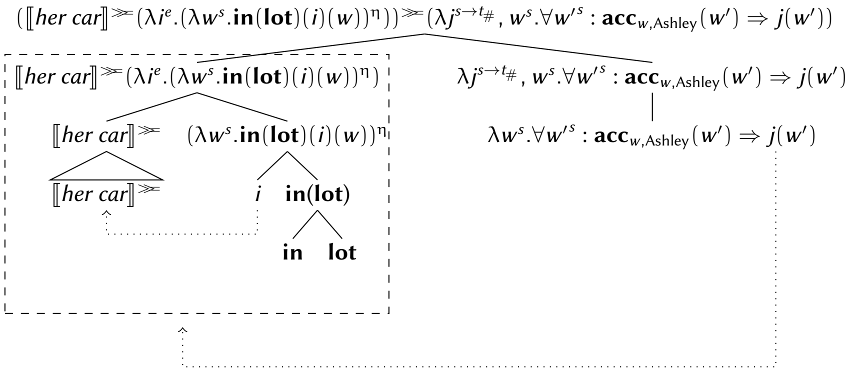

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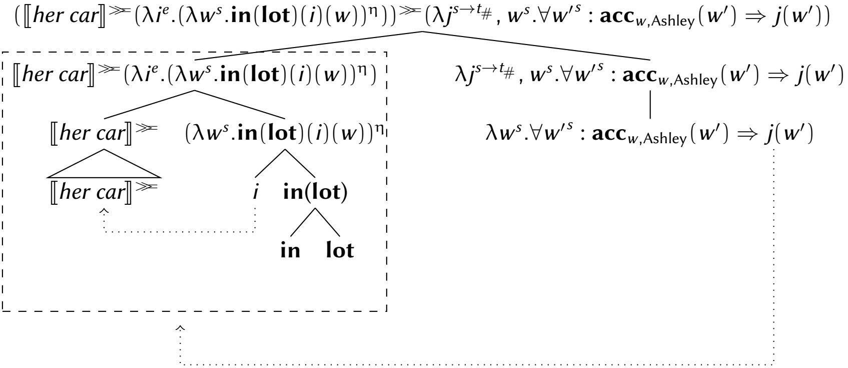

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- The satisfaction account of presupposition projection allows us to describe projection using nothing more than the tools semanticists are used to (and need anyway).

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- These tools, with minor extensions, allow us to describe a rich array of projection behaviors: problems of automatic filtration are overcome by allowing presupposition triggers to take scope.
- Could a scopal-mechanism be incorporated into pragmatic alternatives to the satisfaction account (Schlenker, 2008, 2009, 2010)?

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