Generalizing von Stechow's problem

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SFB Language between Redundancy & Deficiency

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Puzzle

von Stechow (1996) observes that:

- while *wh*-restrictors can be read *de re*,
- pied-piped material **must be read *de dicto***

Claim

von Stechow's problem is a special case of a more general constraint:

any DP with a *wh*-trace must be interpreted *de dicto*

⇒ regardless of whether the DP is pied-piped or not

Proposal

A slight modification to Karttunen 1977:

- *wh*-scope and question formation are unified into **one** operator
- unattested *de re* readings are then syntactically ruled out

1 Background: *de re* restrictors & Karttunen 1977

- The NP-restrictor of *which* can be interpreted *de re*:

(1) **Ann's trip**. *Lisa knows Ann visited Paris and not Rome, but she thinks neither is a capital. You ask me if Lisa knows anything about Ann's trip and I reply:*
Lisa knows which **capital** Ann visited. **True**
≈ for any **capital** x, Lisa knows whether Ann visited x.

- **Karttunen 1977**: questions in **two** steps (as implemented in Cresti 1995)
  - $C_?$ shifts propositions into sets of propositions
  - *wh*-phrases are existential quantifiers that bind a variable across $C_?$

(2) a. $[\![C_?]\!]^w = \lambda p_{st}.\, \{\, p \,\}$
b. $[\![\text{which NP}]\!]^w = \lambda m_{e(st)t}.\, \{\, p \mid \exists x \in [\![\text{NP}]\!]^w.\, p \in m(x) \,\}$

- Interpreting interrogatives:

(3) which capital λ_x $C_?$ [Ann visited x] ⇝ $\{\, \lambda w.$ Ann visited x in $w \mid [\![\text{capital}]\!]^{@}(x) \,\}$
de re *de dicto*

⇒ anything outside the scope of $C_?$ is interpreted *de re*

2 von Stechow's problem

- von Stechow (1996) observes a problem with pied-piping:

(4) Lisa knows [which country's **capital**] Ann visited. **False** in **Ann's trip**

- Two LFs, only one yields an attested interpretation:

(5) which country λ_x $C_?$ [Ann visited [x**'s capital**]] **attested**
⇝ $\{\, \lambda w.$ Ann visited the capital of x in $w \mid x$ is a country in $@ \,\}$

(6) which country λ_x [x**'s capital**] λ_y $C_?$ [Ann visited y] **unattested**
⇝ $\{\, \lambda w.$ Ann visited y in $w \mid y$ is the capital of a country in $@ \,\}$

- **The problem**: how to block (6)?
- Previous accounts tie the problem to pied-piping:
  - von Stechow (1996): pied-piping always reconstructs syntactically
  - Demirok (2019): pied-piping always reconstructs semantically

3 Beyond pied-piping

- **New observation:** no pied-piping, but *capital* is still *de dicto*:

(7) Lisa knows which country Ann visited the **capital** of. **False** in **Ann's trip**

- Yet no constraint seems to block the following LF:

(8) which country λ_x [**the capital of** x] λ_y $C_?$ [Ann visited y]
QR

⇒ Previous accounts cannot be extended to (7)

- Could (8) be ruled out by constraints on covert and overt movement?
⇒ No: still no *de re* with resumptive pronouns

(9) *Qual menino*$_0$ *que a Ana visitou a cidade que ele*$_0$ *nasceu*?
which boy that the Ana visited the city that he was.born
'Which boy did Ana visit the city he was born in?' *Brazilian Portuguese*
≠ *'Which birthplace of a boy did Ana visit?'*

- We must block this configuration, pied-piping or not:

> *wh* λ_x [$_{DP}$ … t_x …] λ_y $C_?$ [$_{TP}$ … y …]
>
> where t_x is a *wh*-trace (a gap, or where the *wh*-phrase is pronounced)

Ruling out alternative constraints

- **Not simply "a *wh*-phrase must bind a variable within $C_?$"** (Sudo 2017)

(10) Which boy$_0$'s mother took him$_0$ home?
≠ *Which mother of a boy took him home?*

(11) Which country$_0$ did Ann visit the capital of t_0 after it$_0$ won the World Cup?
≠ *Which capital did Ann visit after that country won the World Cup?*

- **Not simply "any DP with a variable bound by a *wh*-phrase must be *de dicto*"**

(12) *Ann is married to Bob and Cleo is married to Dan. Lisa doesn't know about this, but she knows that Ann saw Bob and Cleo didn't see Dan.*
Lisa knows which woman$_0$ saw her$_0$ **husband**. **True**
⇒ *her husband* can be interpreted *de re*

4 Karttunen *redux*

- A new operator **WH** contains *wh*-phrases and shifts **properties** into questions

(13) $[\![\text{WH}]\!]^w = \lambda x_e.\lambda P_{set}.\, \{\, \lambda v.\, P(v)(x) \,\}$

(14) Who did Ann see?
a. C [Ann saw [$_{whP}$ **WH** who]]
b. [$_{whP}$ **WH** who] λ_y C [Ann saw y]
c. who λ_x [**WH** x] $\underbrace{\lambda_y \text{ C [Ann saw } y\text{]}}_{\textit{de dicto}}$ ⇝ *C is now semantically vacuous*

- **Accounting for cases of sub-extraction:**

(15) Which country did Ann visit the capital of?
a. which country λ_x [**WH** x] λ_y C [Ann visited [the capital of y]]
b. ∗ [**the capital of** y] λ_z which country λ_x [**WH** x] λ_y C [Ann visited z]

- **Accounting for pied-piping:**

(16) Which country's capital did Ann visit?
a. [[$_{whP}$ **WH** which country]'s capital] λ_z C [Ann visited z]
b. [$_{whP}$ **WH** which country] λ_y [y's capital] λ_z C [Ann visited z]
c. which country λ_x [**WH** x] λ_y [y's capital] λ_z C [Ann visited z]

- **Accounting for *wh*-bound pronouns (12):**

(17) which woman λ_x [**her**$_x$ **husband**] λ_z [**WH** x] λ_y C [y saw z]

5 Open issues

- **Multiple *wh*-questions:** single-pair readings are now a problem:

(18) a. Who read what?
b. ∗ who λ_x [**WH** x] $\lambda_{x'}$ what λ_y [**WH** y] $\lambda_{y'}$ C [x' read y'] ⇝ *uninterpretable!*

- **Beyond questions?** Clefts seem to show the same contrast in **Ann's trip**:

(19) a. Lisa knows it was the **capital** of France that Ann visited. **True**
b. Lisa knows it was France that Ann visited the **capital** of. **False**

References Cresti. 1995. Extraction and reconstruction. *Natural Language Semantics* 3. Demirok. 2019. *Scope theory revisited: Lessons from pied-piping in wh-questions*. PhD diss., MIT. Karttunen. 1977. Syntax and semantics of questions. *Linguistics and Philosophy* 1. Sudo. 2017. De re readings of nested which-phrases in embedded questions. *Snippets* 31. von Stechow. 1996. Against LF pied-piping. *Natural Language Semantics* 4. This research was funded in whole or in part by the Austrian Science Fund (FWF) 10.55776/F1003.