Reconstruction and the directionality of syntactic derivations

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1. Background

Within current minimalism, syntactic displacement is understood in terms of the *copy theory* (Chomsky 1995). Most versions of it (e.g., Nunes 2004) incorporate a copying procedure.

(1) a. [TP was [VP arrested Cosmo$_{gap}$]]
b. [TP Cosmo$_{filler}$ [TP was [VP arrested ~~Cosmo~~$_{gap}$]]]

Anti-reconstruction effects provide evidence against the *copy* operation.

(2) [$_{filler}$ The claim that Cosmo$_i$ was asleep] seems to him$_i$ e_{gap} to be correct.

Takahashi & Hulsey (2009) advanced an account of anti-reconstruction effects in terms of a copying procedure: *wholesale late merger*.

(3) a. seems to him$_i$ [$_{gap}$ the] to be correct
b. [$_{filler}$ the] seems to him$_i$ [$_{gap}$ the] to be correct
c. [$_{filler}$ the [NP claim that Cosmo$_i$ was asleep]] seems to him$_i$ [$_{gap}$ the] to be correct

Notice that in this system:

- ☞ Lower constituents are combined earlier in the derivation.
- ☞ Fillers are generated (i.e., copied) from gaps.

2. The challenge of Barss' Generalization

Reconstruction of a filler to its gap is impossible if the filler does not c-command the gap in the surface representation (Barss 1986, Sauerland & Elbourne 2002).

(4) a. [$_{filler}$ Some young lady] seems to be likely e_{gap} to dance with every senator. $\exists < \forall, \forall < \exists$
b. How likely e_{gap} to dance with every senator does [$_{filler}$ some young lady] seem to be? $\exists < \forall, {*}\forall < \exists$

(5) a. [$_{filler}$ A doctor with any reputation] was certain *(not) to be e_{gap} available.
b. * ... and certain not to be e_{gap} available [$_{filler}$ a doctor with any reputation] was.

Takahashi & Hulsey's (2009) system cannot capture this restriction: in a configuration like (6), there is no way in which movement of ZP over YP$_{filler}$ can influence the internal structure of ~~YP~~$_{gap}$ because ~~YP~~$_{gap}$ was formed even before the head Z entered the derivation.

(6) [XP YP$_{filler}$ [ZP Z ~~YP~~$_{gap}$]]

3. The objective

Advancing a unified system capturing both (i) Takahashi & Hulsey's (2009) predictions and (ii) *Barss' Generalization*. I argue that this result can be achieved if it is assumed that:

- ☞ Higher constituents are combined earlier in the derivation.
- ☞ The internal structure of movement gaps is calculated from the content of the filler.

4. Abandoning strict bottom-up derivations

Syntactic phenomena have received succesful accounts by exploting *top-down* derivations (e.g., Georgi & Salzmann 2016, den Dikken 2018); evidence from processing suggests that a formalism mixing both *top-down* and *bottom-up* steps is psycholinguistically more plausible (e.g., Resnik 1992). For simplicity, I assume the following.

(7) a. left corner constituents, i.e., specifiers, are assembled and combined to a main structure earlier than complements;
b. overt constituents are base-generated in their surface position;
c. overt constituents form movement dependencies, i.e., *chains*, with null syntactic objects, i.e., gaps, to satisfy *Full Interpretation*.

5. Gaps are anaphoric

The internal structure of gaps is calculated through the same mechanisms that determine the distribution of anaphoric expressions. I adopt a generalized version of Schlenker's (2005) economy principle *Minimize restrictors!*:

(8) Given a DP^1 that c-commands an anaphorically dependent DP^2, the restrictor in DP^2 must be as little redundant ***as possible*** with respect to the restrictor in DP^1.

As this definition implies competition between different DPs for a single position, the set of competitors must be constrained in some way. For gaps, this may be done by resorting to conditions of recoverability.

(9) The lexico-syntactic structure of a gap cannot contain information that is not available in its preceding filler.

The condition in (9) determines the alternatives in (10b) for the DP^2 position in (10a).

(10) a. ... [DP^1 the neighbour that I met last week] ... [XP ... ~~DP~~^{2} ...]
b. [DP^2 the] > [DP^2 he$_\varphi$] > [DP^2 the neighbour] > [DP^2 the neighbour that I met...]

6. Reconstruction and anti-reconstruction effects

A-movement typically employs a placeholder D, i.e., a bare determiner, as a gap, e.g., (11).

(11) a. [DP^1 The claim that Cosmo$_i$ was asleep] seems to him$_i$ ~~DP~~^{2} to be correct.
b. [DP^2 the] (✓) > [DP^2 it$_\varphi$] > [DP^2 the claim that Cosmo...]

In (12a), DP^2 must be redundant regarding the restrictor in DP^1. This redundancy is required and enforced because DP^2 must be interpreted as an anaphoric definite description to generate a proper operator-variable dependency at LF (Fox 2002).

(12) a. * [DP^1 Which picture of Cosmo$_i$] did he$_i$ buy ~~DP~~^{2}?
For what x, x a picture of Cosmo$_i$, he$_i$ bought the picture x of Cosmo$_i$
b. [DP^2 which] (✘) > [DP^2 what$_\varphi$] (✘) > [DP^2 which picture of Cosmo] (✓)

Adjuncts modifying nouns do not reconstruct for Condition C (e.g., Freidin 1986, Lebeaux 1988). In (13a), the gap DP^2 is required to be the smallest possible anaphoric definite description. Thus, it will not include an optional clausal adjunct within its structure.

(13) a. [DP^1 Which argument [ADJ that Cosmo$_i$ made]] did he$_i$ believe ~~DP~~^{2}?
For what x, x an argument that Cosmo$_i$ made, he$_i$ believed the argument x
b. [DP^2 which] (✘) > [DP^2 what$_\varphi$] (✘) > [DP^2 which arg.] (✓) > [DP^2 which arg. that ...]

7. Back to Barss' Generalization

The mechanisms introduced so far allow to sketch a promising account of *Barss' Generalization*: since the remnant is generated earlier than the extracted constituent, the condition in (9) dictates that the gap must be the simplest available element, i.e., a placeholder D.

(14) a. [XP [*remnant* ... e_{gap} ...] [X' X^0 ...]]
b. [e_{gap} D] (✓) > NO OTHER ALTERNATIVES

8. Distance effects

Gaps exhibiting internal structure are closer to their filler than gaps that function simply as placeholders. Take the pair in (15) from Thoms (2010).

(15) a. * Morag helped him$_i$ with most of Tam's$_i$ homework.
b. Which of Tam's$_i$ assignments did Morag help him$_i$ with?

Such a pattern follows elegantly from a system that calculates the content of traces "from left to right" in terms of an economy principle like (8).

(16) a. [DP^1 Which of Tam's$_i$ assignments] did Morag [VP ~~DP~~^{2} help him$_i$ with ~~DP~~^{3}]?
b. [DP^2 which] (✘) > [DP^2 what$_\varphi$] (✘) > [DP^2 which of Tam's assignments] (✓)
c. [DP^3 which] (✓) > [DP^3 what$_\varphi$] > [DP^3 which of Tam's assignments]

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