

## Can we know how many?

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We individuate pronominal anaphors by their morphology and by their semantic properties. The tendency in the ellipsis literature has been to individuate ellipses by their syntactic distribution. (The work of Andrew Kehler, being the biggest exception. See Kehler 2000, 2002) Has that been a mistake? What do we see if we individuate ellipses by their semantic properties?

Ellipsis #1 requires a kind of vividness of its antecedent that distinguishes it from pronominal anaphora.

*Two friends standing together at a party. One of them says:*

- (1) Maribel's kids are here.

*the other responds:*

- a. They are a problem.
- b. The boy is a problem.
- c. \* I wish we still were  $\Delta$ .
- d. Mine  $\Delta$  are better.

Tancredi (1992) sketches a way of accounting for this that I think is the most successful. It's based on the idea that the kind of anaphor Ellipsis #1 is is the same kind that we find in focus constructions.

- (2) a. Jill regained<sub>F</sub> power when she shared<sub>F</sub> power.  
b. Jill brought home a stalac[tite]<sub>F</sub> when she brought home a stalag[mite]<sub>F</sub>.  
c. Jill regains<sub>F</sub> power when she restrains<sub>F</sub> power.

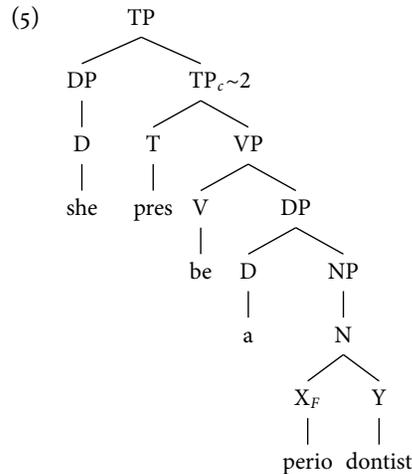
Focus calls up alternatives, which are used in various ways. I'm going to strengthen Tancredi's proposal to the more specific claim that the anaphor that Ellipsis #1 is is the same that is found in contrastive focus. I will treat contrastiveness as one of the specialized ways in which the meaning of focus constructions can be used. (See Rochemont 1986 and Rooth 1992b.)

Contrastive focus alternatives, interestingly enough, can be defined over anything that a sentence contains: words, morphemes, syllables, segments. (see

Artstein 2004.) If we use Rooth (1992b)'s way of expressing this, there is an anaphor, let's call it  $c \sim n$ , which requires as antecedent a sentence of a certain form.

- (3) A: [Jill is an orthodontist]<sub>2</sub>.  
B: She is a perio<sub>F</sub>dontist.  
B: She isn't<sub>F</sub> an orthodontist.  
B: She is<sub>F</sub> an orthodontist. (verum focus)  
B: Max<sub>F</sub> is an orthodontist.
- (4) Contrastive Focus anaphor  
For  $P$  a phrase reflexively dominated by a sentence:  
a.  $\llbracket P_{c \sim n} \rrbracket = \llbracket P \rrbracket$ , only if  $n$  is attached to a contrastive focus alternative to  $P$  (CFA( $P$ )) in the conversation containing  $P$ .  
b. CFA( $P$ ) =<sub>def</sub>  
i. Focus Alternative of  $P$  (FA( $P$ )), if  
ii. FA( $P$ )  $\neq P$ .  
c.  $\beta = \text{FA}(\alpha)$ , iff  $\beta$  and  $\alpha$  are identical, except perhaps for  $\epsilon_F$  in  $\alpha$ , which can be replaced in  $\beta$  by  $\epsilon'$ .  $\epsilon'$  must be of the same (semantic, syntactic, morphological, or phonological) kind as  $\epsilon$ .

This gives to (3B) the representation in (5)



Because the definition of  $c \sim n$  requires identity with a sentence in a conversation, it will need amendment for cases like (6).

- (6) First John told Mary about the budget cuts, and then Sue<sub>F</sub> heard about them. (Rooth 1992a, (14a), p. 9)

Tancredi's suggestion for this case is (7).

- (7) a. Not all sentences in a conversation need to be verbalized.  
 b. A hearer can determine what the silent sentences are from the argument of  $c \sim n$  and spoken sentences.  
 c. A silent sentence must be entailed by spoken sentences+context and satisfy  $c \sim n$ .

If there is a context that allows  $\llbracket$ John told Mary about the budget cuts $\rrbracket$  to entail  $\llbracket$ Mary heard about them $\rrbracket$ , where *them* refers to *budget cuts*, then a silent sentence in the conversation including (6) could be  $\llbracket$ Mary heard about them $\rrbracket_2$ . This is a contrastive focus alternative to *Sue<sub>F</sub> heard about them*, and so  $c \sim 2$  will be satisfied if it is attached to *Sue<sub>F</sub> heard about them*.

On Tancredi's view, Ellipsis #1 can be framed as (8).

- (8) The non-F-marked material in the scope of  $c \sim n$  must be de-accented. Ellipsis #1 is a type of de-accenting.

This leans heavily on there being an adequate solution to (7b), one that will capture differences like (9).

- (9) a. First John told Mary about the budget cuts, and then  $\llbracket$ Sue<sub>F</sub> heard about them $\rrbracket_{c \sim 2}$ .  
 b. First  $\llbracket$ John told Mary about the budget cuts $\rrbracket_3$ , and then  $\llbracket$ Sue<sub>F</sub> did  $\Delta$  $\rrbracket_{c \sim 3}$ .  
 $\Delta$  = tell Mary about the budget cuts  
 $\Delta \neq$  heard about them

(Rooth 1992a, (14): 9)

Tancredi's idea is that spoken material inside the scope of  $c \sim n$  can be used to infer what the unspoken sentence is. (See Fox 2000 for a development of this idea.) Because of the presence of *heard* in the second conjunct of (9a), the first conjunct of (9a) can invoke the silent sentence in (10).

- (10) silent antecedent built from (9a):  $\llbracket$ Mary heard about them $\rrbracket_2$

And this furnishes  $c \sim 2$  in (9a) with an antecedent. Because there is no *heard* that is part of the second conjunct in (9b), (10) cannot be created from (9b), and the only possible antecedent for  $c \sim n$  is the one furnished by the first conjunct.

Equating de-accented material with elided material predicts wrongly the ellipsis pattern in (11).

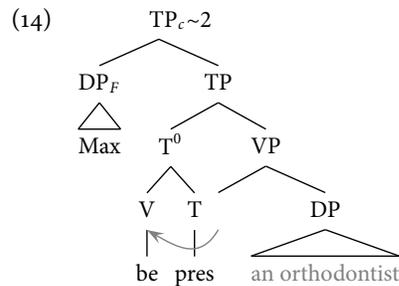
- (11) A:  $\llbracket$ Jill is an orthodontist $\rrbracket_2$ .  
 B:  $\Delta$  perio<sub>F</sub>  $\Delta$ .  
 B:  $\Delta$  isn't<sub>F</sub>  $\Delta$ .  
 B:  $\Delta$  is<sub>F</sub>  $\Delta$ . (verum focus)  
 B: Max<sub>F</sub>  $\Delta$ .

In fact, the possible ellipses are:

- (12) A:  $\llbracket$ Jill is an orthodontist $\rrbracket_2$ .  
 B: She isn't<sub>F</sub>  $\Delta$ .  
 B: She is<sub>F</sub>  $\Delta$ . (verum focus)  
 B: Max<sub>F</sub> is  $\Delta$ .

We need an additional licensing constraint (see e.g., Lobeck 1995, 1999, Merchant 1999, Aelbrecht 2010).

- (13) For XP to be elided, it must be close to a c-commanding  $Y^0$ , where  
 a.  $Y^0 = T^0$ , or  
 b.  $Y^0 = [C^0 Q]$   
 $\vdots$



So far as I know, there is no functioning theory of what makes a certain  $Y^0$  a licenser or not (but see Rouveret 2012 and Erschler 2018). For instance, if Aelbrecht (2009) is correct,  $T^0$  is not a licenser in Dutch, but the head that modals live in is.

- (15) a. Jessica wil niet gaan werken morgen, maar ze moet  $\Delta$ .  
 Jessica wants not go work tomorrow, but she must  $\Delta$ .  
 ‘Jessica doesn’t want to go to work tomorrow, but she has to.’  
 b. \* Guido ging niet bellen, maar hij heeft toch  $\Delta$ .  
 Guido went not call, but he has prt  $\Delta$ .  
 ‘Guido wasn’t going to call, but he did anyway.’  
 (Aelbrecht 2010, (58b): 47, (62b): 50)
- (16) a. Die broek moet nog niet gewassen worden, maar hij mag well  
 those pants must still not washed become, but he may prt  
 al  $\Delta$   
 already  $\Delta$ .  
 ‘Those pants don’t have to be washed yet, but they can be.’  
 b. \* Die broek moet nog niet gewassen worden, maar hij mag well  
 those pants must still not washed become, but he may prt  
 al  $\Delta$  worden.  
 already  $\Delta$  become.  
 ‘Those pants don’t have to be washed yet, but they can be.’  
 (Aelbrecht 2010, (70: 55))

And if Landau (2018) is correct, then the  $X^0$  which c-commands certain PPs (whatever that is) licenses ellipsis.

- (17) ha-trufa ha-zot azra le-iol xole še-ha trufa  
 the medicine the this helped to every patient that-the-medicine the that  
 ha-hi hezika.  
 harmed.  
 This medicine helped every patient that that medicine harmed.  
 (Landau 2018, (52b) p.27)

Tying Ellipsis #1 to contrastive focus accounts for the fact(?) that Ellipsis #1 cannot occur when there is no contrastive focus around. Corpora work suggests that this is one of the defining differences between Ellipsis #1’s application to VP and the similar *do so* anaphora (see, e.g., Kertz 2010, Houser 2010, Miller 2011, 2013). It’s somewhat difficult to control placement of F, but there are environments which I believe prevent F from being in the right position for  $c\sim n$  to give us Ellipsis #1 in a position that is licensed, and in (at least some of) these contexts we have minimal pairs. ((19) is from Wasow 1972, and there might be a confounding explanation for its badness in Hardt 1997.)

- (18) a. \* Mom hugged me and did  $\Delta$  because she loves me.  
 b. Mom hugged me and did so because she loves me.
- (19) a. \* Everyone who voted for Jill did  $\Delta$  because they had to.  
 b. Everyone who voted for Jill did so because they had to.
- (20) a. \* Although ellipsis boggles me, it does  $\Delta$  only because I’m hard of hearing.  
 b. Although ellipsis boggles me, it does so only because I’m hard of hearing.

We also get an explanation for contrasts like those in (21).

- (21) a. Jill will [eat something]<sub>2</sub> but she won’t [<sub>VP</sub>  $\Delta$  food<sub>F</sub>]<sub>c~2</sub>.  
 b. ?\* Jill will eat, but she won’t [<sub>VP</sub>  $\Delta$  food<sub>F</sub>]<sub>c~2</sub>.  
*compare:*  
 Jill will eat, but she won’t [eat food]<sub>F</sub>.

There is an antecedent furnished by the first conjunct of (21a) for the  $c\sim 2$  in the second conjunct. There isn’t an antecedent for  $c\sim 2$  in the first conjunct of (21b), of course, but there also can’t be a silent one formed from (21b). That silent one would have to be constructed from the words in the second conjunct, so it would have to look like (22).

- (22) Jill will eat food

This isn’t a possible antecedent for the  $c\sim 2$  in the second conjunct of (21b), however, since it does not contrast with the VP of that conjunct. That is, it doesn’t meet the requirement that the antecedent for  $c\sim n$  be different from the phrase  $c\sim n$  is attached to. Taking the relevant anaphor for Ellipsis #1 to be the one that is found with contrastive focus derives, then, Fox (2000)’s observation that the material which is used to fashion a silent sentence cannot itself be focused.

If this is correct, then we should not put the ellipsis licenser and the anaphor in the same place, as Merchant (2001) has suggested. That’s because the scope of  $c \sim n$  can be larger than the scope of the licenser.

(23) [Max tried to leave]<sub>2</sub> because [Jill<sub>F</sub> tried [<sub>T<sup>0</sup></sub>to]  $\Delta$ ]<sub>c \sim 2</sub>.

This theory of Ellipsis #1 has three parts, then.

- (24) Ellipsis #1
- One way of de-accenting material in the scope of  $c \sim n$  is ellipsis.
  - The ellipsis way of de-accenting is licit only if it is close to a c-commanding licenser.
  - There is a process that manufactures silent sentences from spoken ones. This is responsible for strengthening the connection between de-accented material and its antecedent when the de-accented material is elided.

If we can explain these parts, then Ellipsis #1 is just a kind of de-accenting in the scope of  $c \sim n$ .

Ellipsis #2 arises in answers to questions, see Merchant (2004).

- (25) Who should end soon?
- [The first speaker]<sub>F</sub> should end soon.
  - [The first speaker]<sub>F</sub>.

These answers can arise after non-questions:

- (26) a. Someone in a suit talked too much.  
 b. Yeah: [The first speaker]<sub>F</sub> talked too much.  
 c. Yeah: [The first speaker]<sub>F</sub>.
- (27) a. A pink man talked too much.  
 b. Yeah: [the first speaker]<sub>F</sub> talked too much.  
 c. Yeah: [the first speaker]<sub>F</sub>.
- (28) a. A couple of speakers talked too much.  
 b. Yeah: [the first two speakers]<sub>F</sub> talked too much.  
 c. Yeah: [the first two speakers]<sub>F</sub>.
- (29) a. Sheila or Mike will bring the gin.  
 b. Sheila<sub>F</sub> will bring the gin.  
 c. Sheila<sub>F</sub>.

- (30) a. Jill dances.  
 b. Yeah: she dances with you.  
 c. Yeah: with you.

But answers are not available to all non-questions.

- (31) a. It’s not that no one talked too long.  
 b. \* Yeah: [the first speaker]<sub>F</sub> talked too long.  
 c. \* Yeah: [the first speaker]<sub>F</sub>.
- (32) a. John, who once killed a man in cold blood, is otherwise nice.  
 b. \* Yeah: he killed Bill<sub>F</sub>  
 c. \* Yeah: Bill<sub>F</sub>.

(based on examples in AnderBois 2010)

Weir (2014) follows Reich (2007) (also AnderBois 2010, 2011), and suggests that we can link when answers are possible to when the sentences they are responses to raise issues. One way of modeling that is with the Question Under Discussion (QUD) thesis about discourse (Roberts 2012). A conversation can be seen as a series of moves that are guided by the goal of answering the QUD. Sentences in a conversation are organized in the same way that answers to questions are. Note that each of the examples in (26)-(29) can be spoken with rising question intonation, making the answers licit. But rising question intonation on (31) or (32) produces a question that is answered by “yes” or “no.”

What we are seeing, then, is a relation between questions – implied or overt – and their answers. Rooth (1992b) also modeled this with an anaphor that accompanies F marking. This anaphor needs the denotation of a question as its antecedent, so to see how to define this anaphor we begin with an analysis of the meanings of questions. Rooth adopts a Hamblin (1973) model, in which questions are a series of alternative propositions, each of which characterize what an answer is. I’ll adopt the view that the thing that distinguishes these alternative propositions is a function that picks out the identity of the thing that would constitute an answer to the question. This decision is led by the existence of functional questions, like (33). (See Engdahl 1986.)

- (33) Which number precedes no positive integer?  
 $[\forall x \text{ number}(f(x))] \wedge \text{no positive integer}_x \text{ precedes } f(x) \vee$   
 $[\forall x \text{ number}(f'(x))] \wedge \text{no positive integer}_x \text{ precedes } f'(x) \vee$   
 $[\forall x \text{ number}(f''(x))] \wedge \text{no positive integer}_x \text{ precedes } f''(x) \vee$   
 $\vdots$

where the identity of each  $f$  is determined by context.

- 4 (34) No positive integer precedes [its square]<sub>F</sub>.

The disjuncts in this denotation are propositions, each of which are identical except for the function,  $f$ , that they contain. These functions select an answer that is dependent on the value of its accompanying variable,  $x$ , and it is restricted so that no matter what value  $x$  has, the thing it selects is a number. In this case, that variable is bound by *no positive integer*, and so  $f$  picks out a different number for each  $x$ . The answer in (33) says that this function is *its square*.

The F-marked part of the answer is the part that identifies  $f$ , and selects thereby the disjunct in the denotation of the question that constitutes an answer to that question. An answer must F-mark the part of it that identifies  $f$ . To account for this, Rooth suggests that the relevant anaphor requires that the focus alternatives to an answer correspond in a particular way to the question. I'll frame that idea with (35).

(35)  $\llbracket P_{a\sim Q} \rrbracket = \llbracket P \rrbracket$ , only if there is a salient question,  $Q$ , whose denotation matches a disjunction formed from  $FA(P)$ .

(36) disjunction formed from  $FA((34))=$   
 No positive integer $_x$  precedes its $_x$  square  $\vee$   
 No positive integer $_x$  precedes its $_x$  cubic  $\vee$   
 No positive integer $_x$  precedes its $_x$  quartic  $\vee$   
 $\vdots$

I won't define what "match" means in (35) – the details depend on niceties – but a rough first pass is (37).

(37)  $Q$  matches  $A$  if each disjunct in  $Q$  entails a disjunct in  $A$ .

If the  $f$ s in (33) include "square\_of," "cubic\_of," "quartic\_of," etc., then the question in (33) will match the disjunction formed from the  $FA((34))$ , that is, the disjunction in (36).

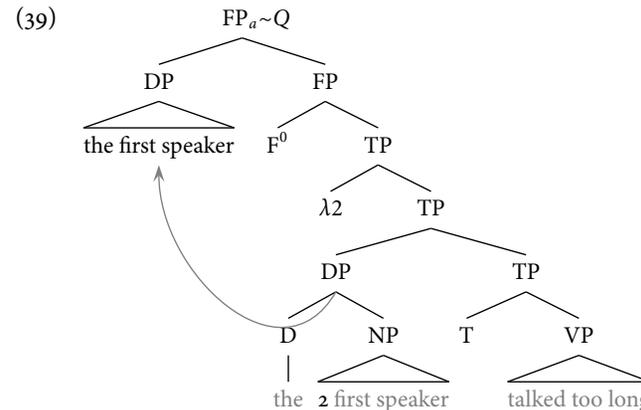
In (26)-(29), the declaratives raise a QUD whose denotation furnishes an antecedent for  $a\sim Q$ . Let's see how this works concretely for (26).

(26) Someone in a suit talked too long.  
 QUD = Which person in a suit talked too long?  
 $\llbracket QUD \rrbracket =$   
 $[\forall x \text{ person\_in\_suit}(f(x))] \wedge f(x) \text{ talked too long } \vee$   
 $[\forall x \text{ person\_in\_suit}(f'(x))] \wedge f'(x) \text{ talked too long } \vee$   
 $[\forall x \text{ person\_in\_suit}(f''(x))] \wedge f''(x) \text{ talked too long } \vee$   
 $\vdots$

(38)  $\llbracket [\text{the first speaker}]_F \text{ talked too long} \rrbracket_{a\sim Q}$   
 disjunction formed from  $FA((38)) =$   
 the first speaker talked too long  $\vee$   
 the second speaker talked too long  $\vee$   
 the last speaker talked too long  $\vee$   
 $\vdots$

If the  $f$ s in  $\llbracket QUD \rrbracket$  include ones that pick out the first speaker, the second speaker, etc., then the QUD will match the disjunction in (38), and the condition imposed by  $a\sim Q$  will be met. The other sentences in (26)-(29) also raise QUD's that match a disjunction formed from the  $FA$  of the answers shown. Because (31) and (32) do not raise QUDs that match the answers given,  $a\sim Q$  attached to these answers will not find an antecedent.

The short answers arise by way of an ellipsis. If we follow Merchant (2004), short answers involve movement of the remnant of ellipsis. This gives to the short answer version of (26) a structure like (39).



Note that I've adopted the copy theory of movement, which puts into the "trace" position a restricted variable (see Fox 2002, 2003). If  $F^0$  is a licenser, then its complement, which is the de-accented portion of the scope of  $a\sim Q$ , can elide. This is how we can capture Reich (2007)'s idea that short answers are anaphoric to QUD, and more generally the denotation of questions.

If the Tancredi model of Ellipsis #1 is right, then the sentences in (25) to (26) are predicted to license elliptical responses that aren't answers, as long as they are in the scope of  $c\sim n$ . That is correct.

- (25) Who<sub>1</sub> [ t<sub>1</sub> should end soon]<sub>2</sub>?  
Who [[<sub>T<sup>0</sup></sub> shouldn't]<sub>F</sub> Δ]<sub>c~2</sub>?
- (26) [Someone in a suit talked too much]<sub>2</sub>  
[[<sub>T<sup>0</sup></sub> Did] [the first speaker]<sub>F</sub> Δ]<sub>c~2</sub>
- (27) [A pink man talked too much]<sub>2</sub>  
[[<sub>T<sup>0</sup></sub> Did] [the first speaker]<sub>F</sub> Δ]<sub>c~2</sub>
- (28) [A couple of speakers talked too much]<sub>2</sub>  
[A couple of audience members]<sub>F</sub> [<sub>T<sup>0</sup></sub> did] Δ too]<sub>c~2</sub>
- (29) Sheila or Mike will bring the gin.  
[[I]<sub>F</sub> [<sub>T<sup>0</sup></sub> will] Δ too]<sub>c~2</sub>

Similarly, (31) and (32) should license Ellipsis #1, even though they do not induce a QUD. That too is correct.

- (31) It's not that [no one talked too long]<sub>2</sub>  
Well, [[the first speaker]<sub>F</sub> [<sub>T<sup>0</sup></sub> did] Δ]<sub>c~2</sub>
- (32) John, who [killed a man in cold blood]<sub>2</sub>, is otherwise nice.  
Mary, who [[<sub>T<sup>0</sup></sub> didn't]<sub>F</sub> Δ]<sub>c~2</sub>, is mean.

This gives us a handle on some other minimal pairs between Ellipses #1 and #2.

- (40) Who<sub>1</sub> did John say [t<sub>1</sub> has the key to the liquor cabinet]<sub>2</sub>?  
[[<sub>(40)</sub>]] =  
[∀x person(f(x))] ∧ John said f(x) has the key to the liquor cabinet ∨  
[∀x person(f'(x))] ∧ John said f'(x) has the key to the liquor cabinet ∨  
[∀x person(f''(x))] ∧ John said f''(x) has the key to the liquor cabinet ∨  
⋮
- a. [Mary<sub>F</sub> [<sub>T<sup>0</sup></sub> does] Δ]<sub>c~2</sub>.  
Δ = have the key to the liquor cabinet
- b. Mary<sub>F</sub>.  
≠ Mary has the key to the liquor cabinet.  
= John said that Mary<sub>F</sub> has the key to the liquor cabinet  
(Weir 2014, (86): 41)

- (41) Why<sub>1</sub> did [John go to the party]<sub>2</sub> t<sub>1</sub>?  
[[<sub>(41)</sub>]] =  
[∀x reason(f(x))] ∧ John went to the party for f(x) ∨  
[∀x reason(f'(x))] ∧ John went to the party for f'(x) ∨  
[∀x reason(f''(x))] ∧ John went to the party for f''(x) ∨  
⋮
- a. [Mary<sub>F</sub> [<sub>T<sup>0</sup></sub> did] Δ]<sub>c~2</sub>.  
Δ = go to the party.
- b. \* Mary<sub>F</sub>.  
≠ Mary<sub>F</sub> went to the party.

(based on Weir 2014, (88): 42)

As with Ellipsis #1, the match between an answer that has ellipsis in it and its antecedent is stronger than that between an answer without an ellipsis. (See Merchant 2007.)

- (42) Who wrote *Constraints on Variables in Syntax*?  
a. It was written by [John Ross]<sub>F</sub>.  
b. \* By John Ross<sub>F</sub>.

An open problem is how to strengthen *a~Q* so that contrasts of this sort emerge. It might be possible to use the same procedure that Tancredi envisions for the strengthening needed for Ellipsis #1. But there must be one way in which this strengthening differs between Ellipses #1 and #2: Ellipsis #2 inherits the restriction in each of the disjuncts of the antecedent. There is nothing parallel to that in Ellipsis #1. Jacobson (2013) discovered this. Her examples are like those in (43).

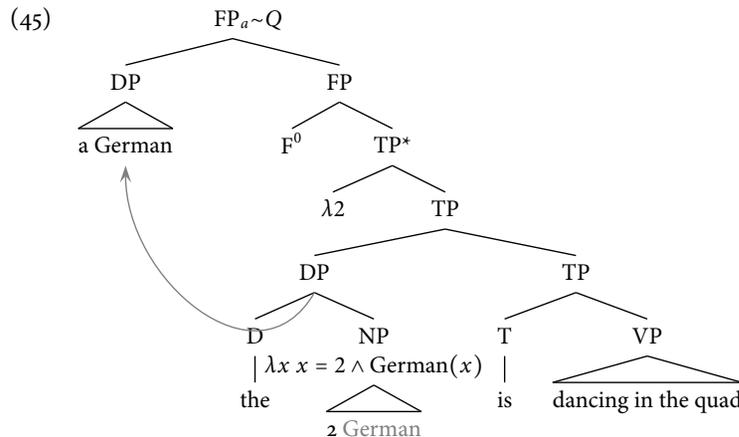
- (43) Which students are dancing in the quad?  
a. Some Germans. (# But I don't know if they are students.)  
b. Some Germans were Δ. (But I don't know if they are students.)  
c. Some Germans were dancing in the quad. (But I don't know if they are students.)

Unlike a full answer, even with Ellipsis #1, the short answer requires that the Germans be students. Short answers inherit the restriction from the question they answer. This is true even if the question they answer is a QUD.

- (44) A student is dancing in the quad.
  - a. Yeah: a German. (# But I don't know if she is a student.)
  - b. Yeah: a German is  $\Delta$ . (But I don't know if she is a student.)
  - c. Yeah: a German is dancing in the quad. (But I don't know if she is a student.)

The method of deriving this effect in Weir (2014) combines a view about how domain restriction works and a characterization of the antecedence condition on Ellipsis #2. His antecedence condition won't spread to contrast sluicing, as we'll see it should, so I'll give a slightly altered sketch of his solution.

Consider the structure assigned to the short answer in (44).



The QUD for (44) is (46).

- (46) Which student is dancing in the quad?
  - $[\forall x \text{ student}(f(x))] \wedge f(x)$  is dancing in the quad  $\vee$
  - $[\forall x \text{ student}(f'(x))] \wedge f'(x)$  is dancing in the quad  $\vee$
  - $[\forall x \text{ student}(f''(x))] \wedge f''(x)$  is dancing in the quad  $\vee$
  - $\vdots$
  - $\equiv \exists f [\forall x \text{ student}(f(x))] \wedge f(x)$  is dancing in the quad.

Weir's suggestion is that the antecedence condition for ellipsis #2 requires that the existential closure of the elided phrase entail the QUD. In this case, that condition isn't met.

- (47) If XP is elided by Ellipsis #2, then the existential closure of XP must entail the antecedent of  $a \sim Q$
- (48) Existential closure of TP\* in (45):  
 $\exists x$  [the  $x$  that is German( $x$ )] is dancing in the quad  
*roughly*: There is a German dancing in the quad.

In order to meet (47), Weir suggests that the hidden domain variable that silently restricts quantification is fixed so that (47) is satisfied. The silent domain variable is responsible for restricting statements like (49) to those relevant to the context of use. (See von Stechow 1994.)

- (49) Every semanticist is upset with the present speaker.  
 $\neq \forall x \text{ semanticist}(x) \rightarrow x$  is upset with the present speaker  
 $\approx \forall x \text{ semanticist}(x) \wedge C(x) \rightarrow x$  is upset with the present speaker  
 (where  $C = \llbracket \text{here} \rrbracket$ )

If this hidden variable is allowed to be determined by (47), then (48) becomes (50).

- (50)  $\exists x$  the  $x$  that is German( $x$ )  $\wedge$  student( $x$ ) is dancing in the quad  
*roughly*: There is a German student dancing in the quad.

(50) does entail the QUD in (46).

- (51)  $\exists x$  [the  $x$  that is German  $\wedge$  student] is dancing in the quad  
 $\Rightarrow$   
 $\exists f [\forall x \text{ student}(f(x))] \wedge f(x)$  is dancing in the quad.

Sluicing also seems to make use of Ellipsis #2. As AnderBois (2010) shows, Sluicing is anaphoric to alternatives that are raised by a QUD.

- (52) a. Who should end soon?  
 b. I don't know: who?
- (53) a. Someone in a suit talked too much.  
 b. Oh? Who?
- (54) a. A pink man talked too much.  
 b. We don't have to wonder who.
- (55) a. A couple speakers talked too much.  
 b. Can you guess who?
- (56) a. Sheila or Mike will bring the gin.  
 b. Tell me which.

- (57) a. Jill danced.
  - b. Do you know who with?
  - (58) a. It's not that no one talked too long.
  - b. \* Oh? Who?
  - (59) a. John, who once killed a man in cold blood, is otherwise nice.
  - b. \* Yikes, who?
- (based on examples in AnderBois 2010)

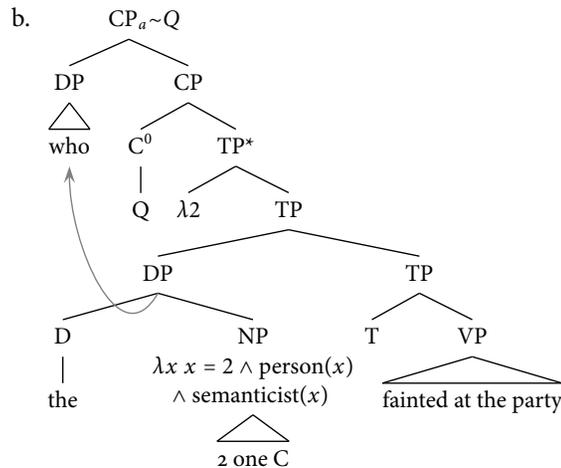
And Sluicing also shows the inheritance effect we've seen in short answers. (see Romero 1998 and especially Vicente, Messick, Barros, and Saab 2019.)

- (60) A semanticist fainted at the party.
  - a. That's funny, I know who fainted at the party, but he's not a semanticist.
  - b. \* That's funny, I know who, but he's not a semanticist.

*compare:*  
Yeah, and I know who.

Our picture for this is (61).

- (61) a. (60) invokes the following QUD
  - $[\forall x \text{ semanticist}(f(x))] \wedge f(x) \text{ fainted at the party} \vee$
  - $[\forall x \text{ semanticist}(f'(x))] \wedge f'(x) \text{ fainted at the party} \vee$
  - $[\forall x \text{ semanticist}(f''(x))] \wedge f''(x) \text{ fainted at the party} \vee$
  - $\vdots$



- c. Existential closure of  $TP^*=$ 
  - $\exists x$  [the  $x$  that is person and semanticist] fainted.
  - $\Rightarrow$
  - $\exists f$   $[\forall x \text{ semanticist}(f(x))] \wedge f(x) \text{ fainted at the party.}$

The wh-phrase of a sluice can invoke a contrastive focus anaphor, and in this case the inheritance property is removed.

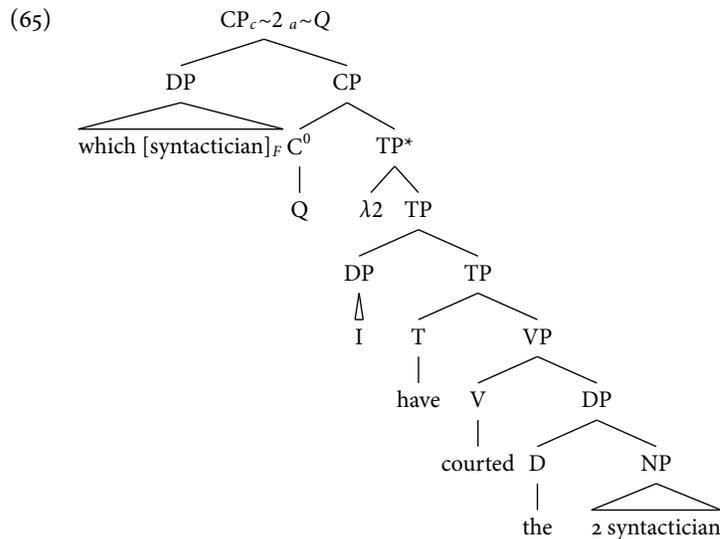
- (62) a. Everyone knows [which semanticist I've courted]<sub>2</sub>, but can anyone guess which [syntactician]<sub>F</sub>?
- b. ? Everyone knows which semanticist's mother was disappointed in his career choice, but can anyone guess which [syntactician's]<sub>F</sub>?

To capture this, we'll need to modify the antecedence condition responsible for inheritance. The simplest modification is probably (63).

- (63) If XP is elided by Ellipsis #2, then the existential closure of a focus alternative of XP must entail the antecedent to  $a \sim Q$ .

In this scenario, there will be both  $c \sim n$  and  $a \sim Q$ .

- (64) QUD raised by (62a):
  - $[\forall x \text{ semanticist}(f(x))] \wedge \text{I've courted } f(x) \vee$
  - $[\forall x \text{ semanticist}(f'(x))] \wedge \text{I've courted } f''(x) \vee$
  - $[\forall x \text{ semanticist}(f''(x))] \wedge \text{I've courted } f''(x) \vee$
  - $\vdots$



(66) Existential closure of a FA(TP\*)=  
 $\exists x$  I have courted the  $x$  that is semanticist  
 $\Rightarrow \exists f [\forall x \text{ semanticist}(f(x)) \wedge \text{I have courted } f(x)]$

Our picture of ellipsis:

- (67) Ellipsis is a type of de-accenting that occurs in the scope of the focus anaphors:  $c \sim n$  and  $a \sim Q$ .
- The antecedent conditions on ellipsis are strengthened versions of those invoked by the focus anaphor.
  - The ellipsis type of de-accenting cannot be chosen unless there is a licensor

This image of ellipsis classifies things differently than is the norm. Gapping, for instance, sometimes seems to have the hallmarks of Ellipsis #1 and not Ellipsis #2, contrary to a popular conclusion (see Steedman 1990, Reich 2007, Toosarvandani 2016, Weir 2014, Boone 2014, and Kush 2016, for examples and discussion.)

**1. Not sensitive to environments that raise issues.**

(68) It's not that no one likes nattoo and someone whiskey.

**2. Contrastive focus is obligatory.**

(69) \* Jill likes beans and Sam nattoo.  
 (unless you don't know that nattoo is beans)

**3. No inheritance**

(70) A syntactician's mother abandoned Johnny and a [semanticist's]<sub>F</sub> derelict parent Suzy.  
*derelict parent* doesn't have to be a mother.

But sometimes the things called Gapping do behave like Ellipsis #2.

**1. Sensitive to environments that raise issues.**

(71) I thought someone brought something.  
 Yeah: Mike gin.

(72) It's not that no one brought anything.  
 \* Yeah. Mike gin.

**2. Contrastive focus isn't obligatory.**

(73) Someone won't eat beans.  
 Yeah: Kyle nattoo.

**3. Inheritance**

(74) A syntactician courted a semanticist.  
 Yeah: Kyle Satoshi  
 (*Kyle* has to name a syntactician and *Satoshi* a beloved semanticist.)

**Proposals**

- An ellipsis is always a type of de-accenting in the scope of a focus anaphor.
- The number of kinds of ellipsis will be the same as the number of kinds of focus anaphors.

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