Telescoping and Scope Economy*

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1 Universal Quantification Across Clauses

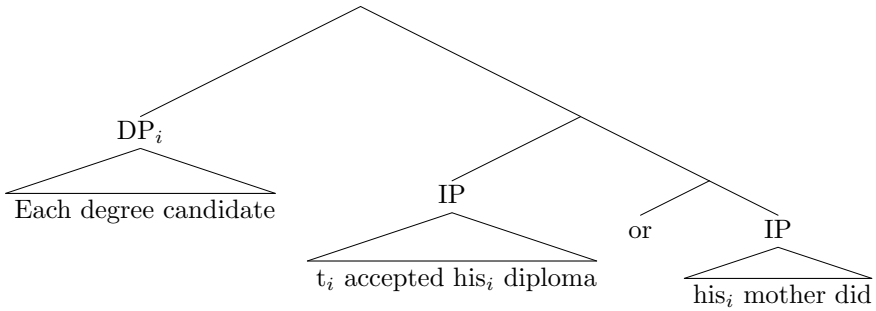
In cases of bound anaphora across disjunction, a universal quantifier seems to take wide scope:

(1) Each degree candidate accepted his diploma or (if he was sick) his mother did.

a. = For each degree candidate x, either x accepted x's diploma or x's mother accepted x's diploma.

b. ≠ Either for each degree candidate x, x accepted x's diploma or for each degree candidate x, x's mother accepted x's diploma.

(2)



In conjunction and cross-sentential cases, anaphora works the same, but there is no clear truth-conditional proof that the quantifier takes wide scope:

(3) Each degree candidate accepted his diploma and his mother took a picture.

(4) Each degree candidate walked to the stage. He took his diploma from the Dean and returned to his seat. (=Roberts' 29, crediting Partee)[1]

Roberts (1987, 1989) calls this phenomena "telescoping" (citing Partee). She analyzes these cases as having a covert quantified expression that the hearer accommodates to make sense of the second sentence:

*These ideas benefitted greatly from discussions with Irene Heim, Danny Fox, and Gennaro Chierchia

[1]Example numbers are from Roberts (1987)

(5) Each degree candidate walked to the stage. (In every situation where a degree candidate walked to the stage,) he took his diploma from the Dean and returned to his seat.

I will explore instead the possibility of analyzing (3) and (4) the same way as (1) – namely, with the universal quantifier taking wide scope over both clauses or sentences.

Possible objections to this analysis:

- Two separate sentences do not form a syntactic unit. How then can something scope over them?
- Will such movement violate the Coordinate Structure Constraint?
- What about downward-entailing operators?

2 Multi-sentence Structures

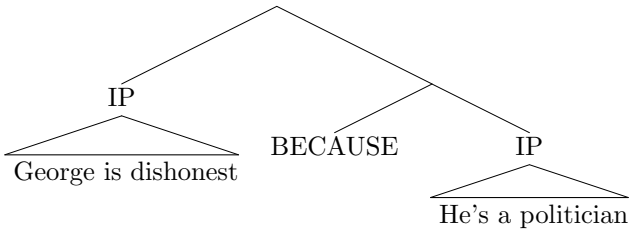
Kehler (2002) argues that in order for two sentences to form a coherent discourse, they must stand in one of a small number of relationships (e.g., one event follows the other, one causes the other, etc.). For instance, (6a) is an example of Kehler's **Explanation** relation:

(6) a. George is dishonest. He's a politician. (=Kehler's 34)
b. George is dishonest because he's a politician. (=33)

The most salient reading for the discourse in (6a) is (6b). So, where does this extra meaning come from?

I propose a small set of null operators that contribute the extra meaning of these relationships beyond the meaning of the component sentences:

(7)



Without such an element, two sentences may not be uttered as one sequential discourse.

2.1 Excursus: Narrative Continuity

Roberts (among others, such as Poesio and Zucchi (1992)) notes that the possibility of telescoping "depends in part on the plausibility of a sort of narrative continuity between the utterances in the discourse," citing examples from Fodor and Sag (1982):

(8) a. Each student in the syntax class was accused of cheating on the exam, and he was reprimanded. (=31)

b. # Each student in the syntax class was accused of cheating on the exam, and he has a Ph.D. in astrophysics. (=32)

In another context, she notes, the same second sentence works fine:

(9) Each candidate for the space mission meets all our requirements. He has a Ph.D. in astrophysics and extensive prior flight experience. (=33)

Notice that while (8a) and (9) sound fine without telescoping, (8b) even sounds bad without telescoping. Under Kehler's analysis, this would be because there is no relation that could plausibly link the two sentences:[2]

(10) John from syntax class was accused of cheating on the exam, and he was reprimanded.

(11) John meets all our requirements. He has a Ph.D. in astrophysics and extensive prior flight experience.

(12) # John from syntax class was accused of cheating on the exam, and he has a Ph.D. in astrophysics.

3 The Coordinate Structure Constraint and Scope Economy

In general, an element may only move out of one side of a coordinate structure if there is a trace or a variable for the element on the other side (Ross 1967):

(13) (=Fox's 56)

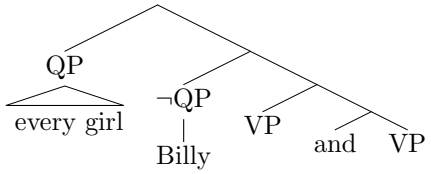
a. * Who do you think Mary likes and Bill hates Sue?

b. Who do you think Mary likes and Bill hates?

However, as Fox (1999) shows, this is not enough to allow quantifier raising:

(14) a. * Billy wants to date every girl in this class and has already asked her out. (=Fox's 66a)

b. *

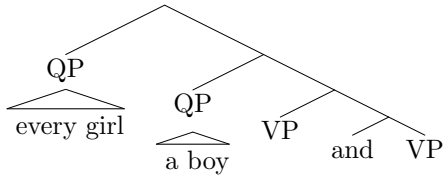


Fox argues that a quantification phrase QP in a coordinate structure can only raise above coordination if there is a scopal operator above coordination that is non-commutative with QP. In (15), this higher operator is "a boy":

[2] As Kehler notes, you can almost always come up with some (sometimes outlandish) scenario to make a discourse coherent; the point is that (a) it is much harder to do so for sentences like (12) and (b) under such a scenario, the related telescoping sentence in (8b) sounds much better, too. See also Wang, McCready and Asher (2003) for a fuller discussion.

(15) a. A boy wants to date every girl in this class and has already asked her out. (=66b)

b.



Coordination itself is invisible to Scope Economy. Therefore, this higher operator is needed to satisfy Scope Economy and allow the movement.[3]

3.1 Event Structure

So, if two sentences in discourse form a sort of coordination as proposed above, and telescoping is when a universal quantifier scopes above this coordination, what is the higher operator that licenses quantifier raising? First, let's examine the meanings of two null discourse coordinators:

(16) George is dishonest. He is a politician. This has been the case for two years.

(17) John walked to the stage. He received his diploma from the Dean. This took two minutes / This happened twice.

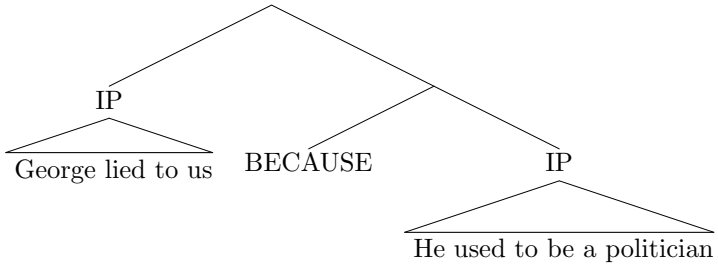
In (17), the pro-form "this" can pick one of two events: receiving the diploma or the event comprising both walking to the stage and received the diploma. In (16), the only events (states in this case) "this" may target are the dishonesty and the being a politician – not any combination of the two.

Rough meanings and structures:

(18) $[\![\textbf{BECAUSE}\ \phi\ \psi]\!] = \exists e\ .\ \exists e'\ .\ \phi(e)$ and $\psi(e')$ and in the closest worlds where $\neg\phi(e)$, $\neg\psi(e')$

(19) $[\![\textbf{THEN}\ e\ \phi\ \psi]\!] = \exists e' \subset e\ .\ \exists e'' \subset e\ .\ \phi(e')$ and $\psi(e'')$ and $e'' < e'$

(20)

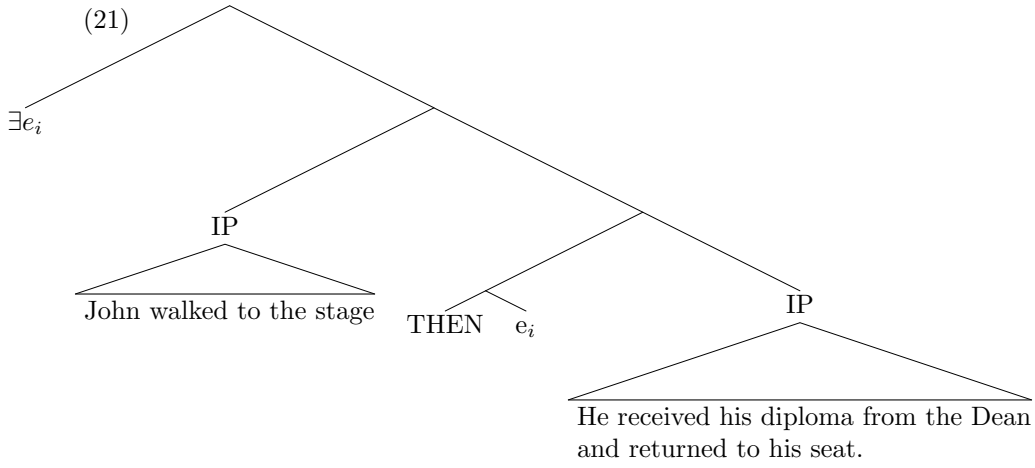


[3]Notice that disjunction does not seem to have the same constraints as conjunction:

(i) Billy wants to date every girl in this class or has already asked her out.

So, it's possible that universal quantifiers only need the higher operator Fox discusses because they are scopally commutative with conjunction.

(21)



In (21), John walks to the stage in a subevent of e and then receives his diploma in a subevent of e; but in (20) the George lying event is simply asserted to be related to the event of his having been a politician.

3.2 Telescoping

Notice that structures with THEN, which have a higher existential event operator, allow telescoping, but structures with BECAUSE, which lacks this higher operator, do not[4]

(22) Each degree candidate walked to the stage. He received his diploma from the Dean and returned to his seat.

(23) # Each of my friends is dishonest. He's a politician.

I propose that the two sentences in a telescoping case always form a coordinated structure as in (24), possibly with a covert coordinator. The universal quantifier in the first sentence can raise over this coordination, but only when licensed by the scopally non-commutative existential event operator:

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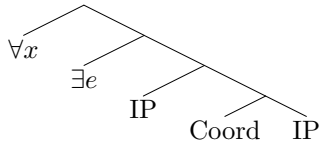

[4]Wang et al. (2003) report in more detail (including a survey) on which discourse relations support telescoping.

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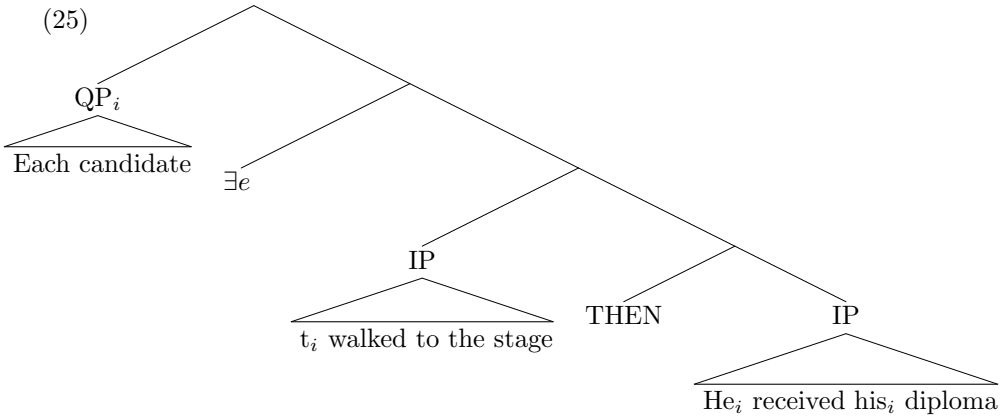
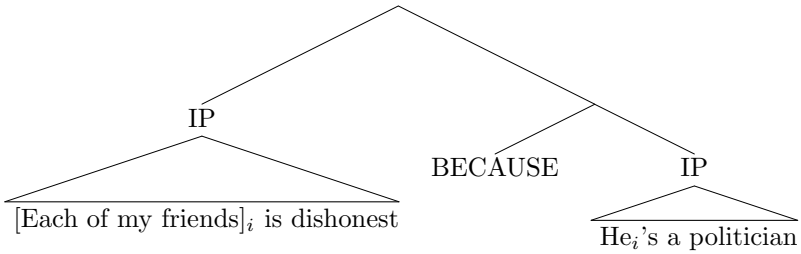


Without such an operator, telescoping is disallowed:

(26) #



Roberts' analysis has no account for this restriction.

3.3 Further Prediction

One further prediction of this analysis is that if the universal quantifier is somehow "trapped" in the first sentence, telescoping will fail:[5]

(27) # Every degree candidate walked to the stage at once. He threw his cap in the air.

Let's assume that "at once" requires an argument that represents multiple events and asserts that the multiple events happened at the same time. This rules out:

(28) # John walked to the stage at once.

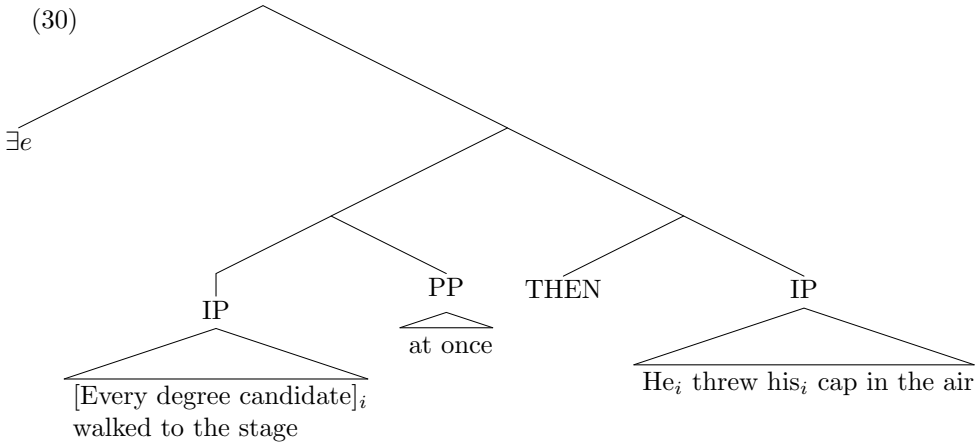
(29) # Every degree candidate is such that he walked to the stage at once.

So, "every degree candidate" cannot raise in (27):

[5]The word "every" does work in telescoping structures:

(ii) Every degree candidate walked to the stage. He received his diploma from the Dean and returned to his seat.

(30)



Therefore, it cannot bind the pronouns in the second sentence. This fact is not captured by Roberts' analysis, where the universal quantifier does not have to move to bind the pronouns.

4 Downward-entailing operators

One possible counterargument to this analysis (due to Evans 1980) is the fact that negative quantifiers seem to telescope, but at the same time seem not to have scope over both sentences:

(31) a. Only one degree candidate walked to the stage. He accepted his diploma.

b. Only one degree candidate walked to the stage and accepted his diploma.

Unlike "each" and "every," these operators are plural when they quantify over more than one individual:

(32) Only seven degree candidates walked to the stage. #He / They accepted #his diploma / their diplomas.

They work a lot like definites and indefinites:

(33) John and Dan walked to the stage. They accepted their diplomas.

(34) Some students walked to the stage. They accepted their diplomas.

Also, independently of telescoping, it has been noted (cf. Beghelli and Stowell 1997) that downward-entailing operators have a very hard time receiving wide scope:

(35) Every boy approached only one girl. ≠ There's only one girl that every boy approached.

(36) Every boy approached two girls, but

a. #*Every* boy approached only one girl.

b. ✓Only one girl was approached by *every* boy.

Therefore, I would submit that "only one" cases are actually just cross-sentential anaphora like definites and indefinites; telescoping is disallowed in these cases by a more general constraint on movement of downward-entailing operators.

5 Conclusion

- Analysis covers disjunction, conjunction, and telescoping cases.
- Explains Roberts' "narrative continuity."
- Roberts' analysis does not explain the facts in sections 3.2 and 3.3.
- Unclear how Roberts' analysis would explain disjunction.
- Downward-entailing operators require further study.

References

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