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Christopher Hammerly and Brandon Prickett
Northampton, September 2016

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Crossing clauses covertly—difficult but not impossible*

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1. The QR locality problem(s)

A standard claim about the locality of *quantifier raising* (QR) is that it is a clause-bounded operation since examples like (1) are often considered to be unambiguous, with the wide scope interpretation of *every N* over *some N* ($*\forall\gg\exists$) being unavailable.

- (1) a. #Someone said that every man is married to Sue. [Fox 2000: 62]
b. #Someone said that Sue is married to every man. [Fox 2000: 62]
c. I told someone you would visit everyone. [Johnson 2000: 188]
d. A technician said that John inspected every plane. [Cecchetto 2004: 350]

Such judgments, however, are not absolute but variable, and some speakers do allow inverse scope across finite clauses (e.g., Syrett and Lidz 2011, Syrett 2015). The situation is even more controversial when scope in infinitival constructions is considered. Hornstein 1994, 1995 and Cecchetto 2004 state that QR is only possible out of restructuring infinitives, which are assumed to involve a mono-clausal configuration. Kennedy 1997 and Moulton 2007, on the other hand, contest this claim and provide examples such as (2) which, according to them, allow an inverse scope configuration.

- (2) a. Some congressional aide asked to see every report. [Kennedy 1997: 674]
b. A different student decided to report on every article on the reading list. [Moulton 2007: 2, (4b)]

Furthermore, when scope in *antecedent contained deletion* (ACD) contexts is considered, QR out of all types of embedded clauses appears to be generally possible. Since examples like (3) allow a large ellipsis antecedent as indicated, assuming QR is required to resolve ACD, such examples must involve QR of *every committee* + the relative clause to a position

* I thank Jonathan Bobaljik, Renato Lacerda, Zheng Shen, Jon Sprouse, the audiences at Bayonne, Toronto, Maryland, Vienna, NELS46, and the participants of my Spring seminars for comments and feedback.

above the matrix verb, thus across finite clause boundaries. The possibility of ACD related “long-distance” QR crossing a finite clause boundary has also been confirmed in experimental studies, as summarized in (3b,c).

- (3) a. John said that you were on every committee that Bill did ~~say that you were~~
~~Ø~~.
 OP » [said that you were on [every committee that Bill did ~~say that you were~~
~~Ø~~]] [Wilder 1997]
- b. Clifford said that Goofy read every book that Scooby did.
 [Syrett and Lidz 2011: 321 (26); p. 326: “a third of the adults accessed the supposedly ungrammatical matrix interpretation at least once, and 4 adults accessed this interpretation at least half of the time, providing explicit justifications for doing so that referenced the matrix interpretation”]
- c. Someone said he could jump over every frog that Jessie did.
 [Syrett 2015: (14), 585f; TVJT: matrix ellipsis, ∀»∃; 42.5% ‘yes’ answers]

Furthermore, as shown in Tanaka 2015, extensive experimental evidence leads to the scales in (4): QR out of finite clauses is significantly more difficult than local QR, but also significantly easier/better than QR out of strong islands. Furthermore, QR tracks the *wh*-extraction potential, which also shows differences in different types of weak islands.

(4) *Experimental evidence: Difficulty scales*
 *←... →✓

QR:	strong island	» _{sig}	finite indicative	> _{not-sig}	finite subjunctive	» _{sig}	no locality violation
<i>wh</i> :	strong island	» _{sig}	<i>after gerund</i>	> _{not-sig}	<i>during PP</i>	» _{sig}	no locality violation
QR:	strong island	» _{sig}	<i>after gerund</i>	» _{sig}	<i>during PP</i>	» _{sig}	no locality violation

Lastly, although theoretical solutions have been proposed, the clause-boundedness restriction of QR has also been puzzling when compared to overt A'-movement (*wh*-movement, topicalization). As shown in (5a,b), QR differs from overt A'-movement in that the latter can escape from finite clauses via successive cyclic movement, which raises the question of why covert movement obeys different locality constraints from overt movement. The table in (6) summarizes the issues posed for the distribution of QR. In this paper, I will first present further experimental evidence for a the gradient behavior of QR and then propose a non-syntactic processing constraint on QR which covers the distribution and difficulty scales noted for the locality of QR.

- (5) a. It's Mary that I told someone __ you would visit __. [Johnson 2000: 188]
- b. What did a technician say __ that John inspected __? [Cecchetto 2004: 350]

(6) English: $\forall \gg \exists$ [*Clause-type* \nexists (QR)]

Clause types	Impossible	Possible	Experimental evidence
Finite clauses	Fox 2000, Johnson 2000, Cecchetto 2004, among others	Footnotes ACD	Difficult but easier/better than from islands
Non-restructuring infinitives	Hornstein 1994, 1995, Cecchetto 2004	Kennedy 1997, Moulton 2007	Harder than restructuring infinitives
Restructuring infinitives	— (?)	Everyone (?)	Harder than simple predicates

2. The non-finite scale

In a pilot experiment, Moulton 2007 shows based on the results of two pen-and-paper questionnaires that QR out of non-restructuring infinitives is possible, but more difficult than QR out of restructuring infinitives. Importantly, the latter is also significantly more difficult than QR within simple clauses (single predicates).¹

Moulton’s questionnaires followed an experimental design developed by Anderson 2004 (see (7) for a sample example). The contexts given to speakers are biased towards inverse scope interpretations, which has the purpose of singling out difficulties arising due to the structural configuration rather than the non-linguistic context. As shown in (7), speakers were presented with a short story, followed by a question about the story which allowed two answers. If the answer to the question in (7) is ‘several’, the speaker could only have had an inverse scope interpretation in mind (the surface scope interpretation would only be compatible with a single chef; only the inverse scope interpretation *for every dish there is at least one chef who prepared that dish* is compatible with several chefs). Lastly, the counting Moulton did was done conservatively—in the results summarized below only ‘several’ answers were counted, which unambiguously indicate inverse scope. If a speaker gave a ‘one’ answer, this could still be compatible with inverse scope, and the numbers of inverse scope may thus in fact be even higher.

(7) *Sample Item:*

The restaurant was very busy on Saturday night. The head chef needed all his assistant chefs to pitch in. When he returned from the market, he was pleased that an assistant chef {prepared}/ {had begun/helped/decided to prepare} every dish.

How many assistant chefs prepared/had begun/helped/decided to prepare dishes?

One Several

The results of this pilot study are summarized in (8).

¹ Moulton did not test QR out of finite clauses (but see Tanaka 2015).

- (8) Mean Proportion of inverse scope responses
- a. Mono-clausal .71
 - b. Restructuring (RI1): *begin, start, try* .61
 - c. Implicative restructuring (RI2): *dare, help, manage* .61
 - d. Non-restructuring (NRI): *choose, decide, hope, promise, want* .49

<i>Paired t-tests on an items analysis</i>		<i>Paired t-tests on subjects performance</i>	
Mono-clausal & NRI	p < .003	Mono-clausal & NRI	p < .001
Mono-clausal & RI1	p < .03	Mono-clausal & RI2	p = .05

As expected, inverse scope from non-restructuring infinitives is significantly more difficult than inverse scope in simple predicates. One fact that is surprising, however, in Moulton's results is that inverse scope from restructuring infinitives is significantly harder than inverse scope within a single clause. In other words, inverse scope is harder out of *any* type of infinitive, compared to simple predicates. Although the results are not entirely conclusive, in particular, no significance was reached between restructuring and non-restructuring contexts, and further testing is thus clearly necessary, these initial results can nevertheless be seen as suggestive of the difficulty scale in (9). In the next section, I summarize the main challenge that these results pose for syntactic accounts of the locality of QR.

- (9) *Difficulty of inverse scope:*
non-restructuring complement » restructuring complement » simple predicate

3. Difficulties for syntactic accounts and an alternative

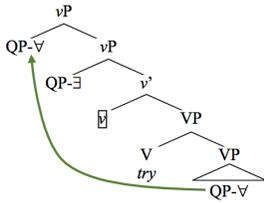
The difference between QR and overt A'-movement has been attributed to a combination of locality enforcing successive cyclic movement (e.g., the *Phase Impenetrability Condition*) and a QR-specific economy condition—*Scope Economy* (Fox 2000, Cecchetto 2004, Takahashi 2011, Wurmbrand 2013), as in (10a). In finite contexts (and possibly also non-restructuring infinitives), the embedded clause is a locality domain (e.g., a phase) which requires movement to stop-over at the edge. Scope Economy, on the other hand, only allows covert movement if it is semantically motivated. Since movement to Spec,CP is considered to be semantically vacuous, it is only allowed when there is independent motivation (e.g., movement to check a *wh*-feature). If movement is 'just' for scope reasons, each movement step must satisfy (10), which cannot be met in finite contexts. Lastly, to derive QR out of finite clauses in ACD contexts, Cecchetto 2004 proposes that ACD resolution qualifies as semantic motivation for Scope Economy (see (10b)).

- (10) a. Scope-shifting operations cannot be semantically vacuous (Fox 2000: 3).
b. Semantic motivation (Cecchetto 2004): i) scope over another QNP, ii) resolving a type mismatch, iii) solving an infinite regress problem in an ACD configuration.

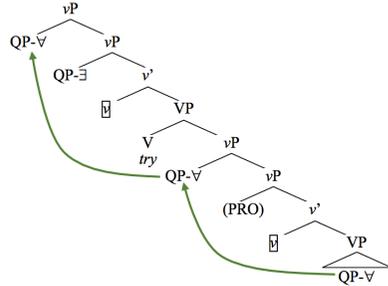
This type of account leaves a few questions unanswered. From a theoretical perspective, the list of effects that satisfy Scope Economy is, at least in part, stipulated. In Cecchetto 2004's account, QR over the matrix verb is only allowed when the matrix VP feeds into

ACD resolution. This raises the question of why ACD, but not taking scope over an intensional matrix verb (which is not semantically vacuous), qualifies as semantic motivation. From an empirical perspective the question is why QR from a restructuring infinitive is harder than QR within a simple predicate, and why QR from a non-restructuring infinitive is harder than from a restructuring infinitive. To illustrate, restructuring infinitives can be treated either as VPs or vPs. Under the first option, (11a), QR over the matrix subject involves a single step of QR, which satisfies Scope Economy in two ways ((10b.i) or (10b.ii)). Thus, it would not be clear why QR from restructuring infinitives differs significantly from QR within simple predicates. Under the second option, (11b), QR over the matrix subject involves two steps of movement, however, again both steps satisfy Scope Economy—the first step resolves a type mismatch, the second involves movement over another QNP. Thus, under this structure, too, it would not be clear why QR from restructuring infinitives differs significantly from QR within simple predicates. Enriching the structure of restructuring infinitives in a way that a Scope Economy violation arises may be an option, however, this then leaves unanswered why QR from a non-restructuring infinitive is harder than from a restructuring infinitive.

(11) a. Restructuring: VP



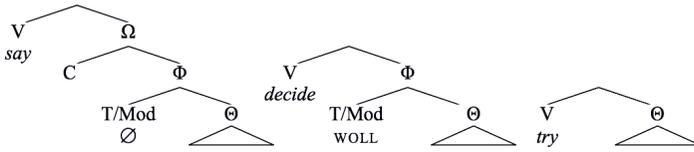
b. Restructuring: vP



To solve these questions, I propose an alternative to Scope Economy, which relates the scale of difficulty of QR across different types of clauses to different degrees of structural complexity as independently diagnosed for infinitives. I suggest that there is no QR-specific locality constraint but that unbounded multi-step QR is in principle possible. However, covert movement adds a processing cost (Anderson 2004, Syrett and Lidz 2011) to be detailed below.

Before turning to this alternative, I briefly summarize the conclusions of previous work on the cross-linguistic distribution of restructuring. Infinitives, possibly universally, can come in different sizes, which can be seen as the result of a cyclic clause building process in which unnecessary clausal domains are not projected (see Wurmbrand 2014a, 2015b for the distribution of restructuring in 24 languages from 6 families; and Todorović and Wurmbrand 2015 for evidence from languages with no/less infinitives). Following the clausal organization into three domains proposed in Grohmann 2003, it can be shown that complement clauses map to three sizes as in (12): bare Θ -domains (the typical restructuring complements), Φ -domains (typically future complements which contain a tense/modal domain), and clausal Ω -domains (typically propositional complements with full clausal status including an embedded A' domain).

- (12) a. Finite b. Future infinitive c. Tenseless infinitives



Based on these structures, the table in (13) highlights the correlation between structural complexity and the difficulty of QR: the more domains are crossed by covert movement, the more difficult QR is perceived.

(13)	Type of complement	finite	future	tenseless	simple predicate
	# of domains	3 domains	2 domains	1 domain	—
	Difficulty of QR	←hardest	»	»	easiest→

4. The cost of QR—a preliminary proposal

In this section, I provide a preliminary formalization of the idea that the scale of difficulty observed for QR tracks the complexity of the structure involved. The main proposal is that complexity triggers more movement steps under the assumption that QR is an A' -operation with the same domain and locality restrictions as overt A' -movement (there is no special clause-boundedness restriction for QR). Instead unbounded QR can apply in a step-by-step fashion from one cyclic domain to the next (I leave open here whether these domains are phases or domains as defined in the previous section based on Grohmann 2003). When it comes to processing, steps of covert movement incur a cost along the lines of Anderson 2004's *Processing Scope Economy* in (14), which I will lay out below in more detail for the complementation structures discussed in this paper.² If the cost is too high for a speaker, inverse scope is rejected. The uncertainty and variability of speaker judgments in contexts with increased processing costs (finite clauses and non-restructuring infinitives) is then not unexpected, since working memory and complexity thresholds can vary among individuals.

- (14)
- Processing Scope Economy*
- [Anderson 2004: 48, (46)]

The human sentence processing mechanism prefers to compute a scope configuration with the simplest syntactic representation (or derivation). Computing a more complex configuration is possible but incurs a processing cost.

Why is the cost higher in covert movement than in overt movement? Although filler-gap dependencies also involve an increased processing burden (see Wanner and Maratsos 1978 for one of the first studies demonstrating this), sentences such as (15a) are perfectly grammatical, whereas inverse scope in the parallel (15b) is much more difficult, and, as we saw,

² Tanaka 2015 also proposes a general cost for QR as part of a reduction mechanism which calculates processing costs arising for various syntactic locality and economy issues: "Every instance of QR comes with a reduction in acceptability. (-0.5 reduction)" [188, (23c)].

rejected by many speakers, unless an additional cue such as ACD is present.

- (15) a. What did a technician say {what} that John inspected {what}?
- b. {every plane} A technician said {every plane} that John inspected every plane.

The difference lies in the way parsing has to proceed in overt vs. covert movement. Assuming that in QP»QP QR configurations, QR is movement to the left, the filler-gap dependency is essentially reversed, and there is no cue for a long-distance dependency until the second QP is reached. Thus, in contrast to overt *wh*-movement, QR involves a retrospective search in parsing, which incurs the higher processing cost for QR than for overt successive-cyclic movement.

Let us now see how successive cyclic QR applies in the different constructions discussed in this paper and how the processing costs are calculated in these derivations. I adopt a copy approach to movement (both overt and covert), and a process such as *trace conversion* in (16) to resolve copy choice at LF and to create the necessary quantifier-variable (like) configuration.

- (16) *Trace conversion* [Fox 2003: 111, (50)]
- a. Variable Insertion: (Det) Pred \Rightarrow (Det) [Pred $\lambda y(y=\text{him}_n)$]
[n is the index of the moved QNP]
- b. Determiner Replacement: (Det) [Pred $\lambda y(y= \text{him}_n)$] \Rightarrow the [Pred $\lambda y(y= \text{him}_n)$]

A sentence such as (17a) has the derivation in (17b-d). The part of this derivation which will be essential for the proposal is that both copies created by QR are relevant for the interpretation.

- (17) a. A technician inspected every plane $\forall \exists$
- b. [_{VP} {every plane} a technician v [_{VP} inspected {every plane}]] QR
- c. [_{VP} {every plane} a technician v [_{VP} inspected {every plane}]] PF
- d. [_{VP} {every plane} λx [a technician v [_{VP} inspected {the plane x}]]] LF

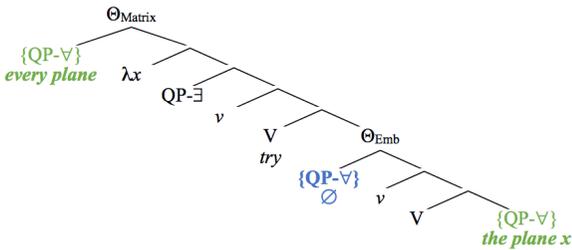
Turning to restructuring infinitives such as (18a), we have seen in the previous section that simple predicates (a single Θ -domain) differ from constructions with even the smallest size complement in the number of domains present—a restructuring complement adds at least its own Θ -domain. For QR to take place in (18a), the embedded object QP must leave the embedded Θ -domain. I assume that movement from one domain to the next must stop over at the edge of that domain as illustrated in (18a).³ In a phasal approach, this would correspond to the restructuring complement counting as a phase, either because it is a vP (see Wurmbrand 2013, Wurmbrand and Shimamura To appear) or because it is the top extended projection of the embedded V (see Wurmbrand 2013, To appear, Bošković 2014). This additional step will allow us to distinguish the processing burden incurred by QR from restructuring complements vs. simple clauses. In (18b), the highest copy of the moved QP is again interpreted for scope, and the lowest copy as a definite description/variable. (18b)

³ Technically, this is incompatible with Grohmann’s suggestion of antilocality. I leave this issue open here.

differs, however, from (17d) regarding the middle copy. This copy is semantically vacuous and only needed to satisfy syntactic locality. In other words, the sole purpose of this copy is to provide a link between two other copies which would otherwise be too far apart from each other. It is the presence of such linker copies which I suggest creates the additional processing costs. In (17), covert movement of the object QP to derive inverse scope is within one domain, thus no linker copy is required. In (18), on the other hand, movement exits a domain, which leads to the presence of a linker copy, making QR in even the smallest restructuring infinitives more difficult.

(18) a. At least one technician tried to inspect every plane. $\forall \gg \exists$: harder than (17)

b.



A prediction of this account is that QR from multiple restructuring infinitives should incur a higher cost since more domains are crossed. Although no direct evidence from restructuring infinitives is available yet, the behavior of QR from raising infinitives could be seen as indirect initial support. Raising constructions allow reconstruction of the subject, hence inverse scope between the subject and an embedded QP is not relevant for showing whether QR out of raising infinitives is possible or not, but the following examples show that QR out of raising contexts is considered to be impossible (Lebeaux 1995:65, Fox 1999:160, Fox 2000:144). In all of these examples, at least one embedded Θ and Φ domains are crossed (leaving open how PPs contribute to the processing cost), in stacked raising contexts even more, which thus correctly predicts that QR is very difficult out of raising infinitives (all of (19) have been judged as $*\forall \gg \exists$).

(19) a. Mary seems to two women to be expected to dance with every senator.

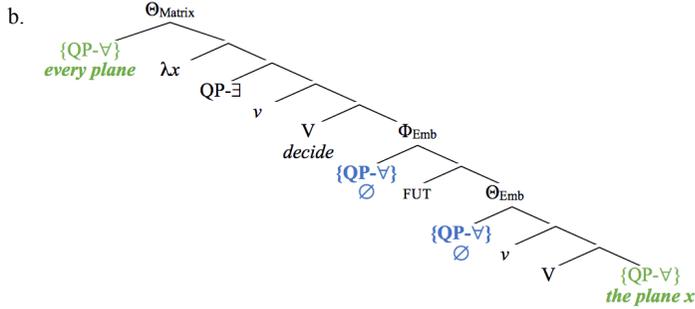
b. #This soldier seems to someone to be likely to die in every battle.

c. #The ball seems to a boy to be under every shell.

cf. Every shell seems to a (different) boy to be over the ball.

The derivation for QR from a non-restructuring infinitive is given in (20). Since infinitives combining with verbs like *decide* involve a future interpretation, they must project a Φ domain (see Wurmbrand 2014b for motivation of a syntactic future element in infinitives). To take scope over a matrix quantifier, a QP originating in embedded object position thus has to cross two domains to reach a position above the matrix subject. As illustrated in (20b), this leads to two semantically vacuous linker copies, which further increase the processing costs and make inverse scope more difficult than in restructuring infinitives and simple predicates.

(20) a. At least one technician decided to inspect every plane. %∀»∃

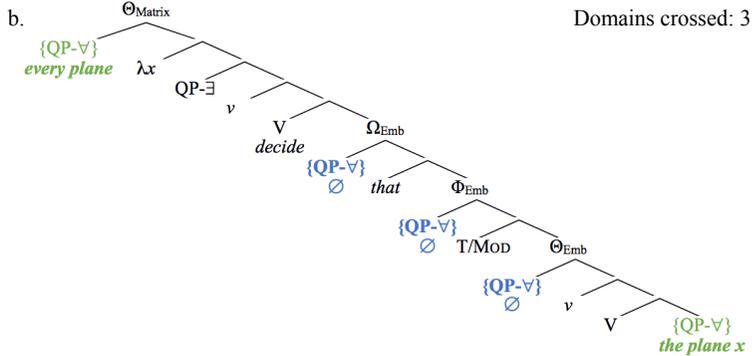


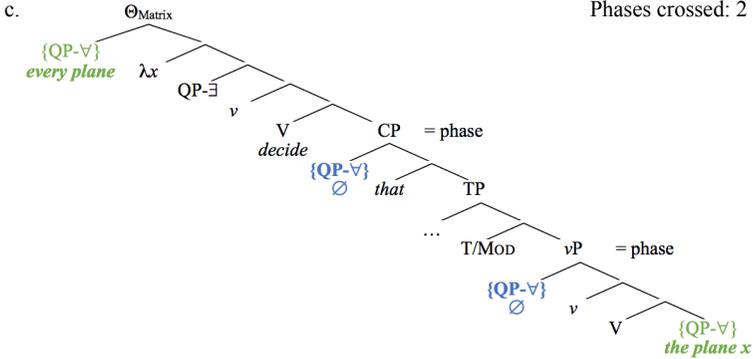
The properties of the derivations of the three constructions discussed above are summarized in the table in (21). As shown, a (contextual) phase approach and an approach that penalizes covertly leaving Grohmann’sche domains make the same predictions regarding the difficulty of the constructions discussed so far, as long as restructuring infinitives are considered as phases and future infinitives contain two phases—the embedded vP and the top projection of the embedded clause, be that CP or TP.

(21)	Exx	✓/*	Phases	Domains
A technician inspected every plane.	(17)	✓	∅	∅
A technician tried to inspect every plane.	(18)	[?]	vP	Θ
A technician decided to inspect every plane.	(20)	[?/*]	vP, T/CP	Θ, Φ

This finally brings us to QR from finite clauses. Interestingly, a phase-based approach and a domain-based approach make different predictions regarding the difficulty of QR from a finite clause compared to QR from a non-restructuring infinitive. The difference between phases and domains is the TP/Φ domain in contexts where that domain is not the top projection/domain of a clause. As shown in (22), an embedded finite clause involves three domains, (22b), but only two phases, (22c).

(22) a. At least one technician decided that he would inspect every plane. %∀»∃





A phase approach thus predicts that QR from finite clauses should be similar in difficulty to QR from non-restructuring (e.g. *decide*) infinitives, whereas a domain approach predicts that QR from finite clauses should be harder than QR from non-restructuring infinitives. While impressionistically, speakers tend to reject QR from finite clauses more severely than from non-restructuring infinitives, this cannot be backed up with psycholinguistic data yet. To directly compare these two configurations, further experiments are necessary.

5. ACD

Let us finally return to the discrepancy between ACD-related and non-ACD related QR. As pointed out above, even speakers who generally do not accept inverse scope of a QP across a finite clause or a non-restructuring infinitive boundary (e.g., as reported in (23a)) allow matrix ACD resolution and accompanying wide scope as in (23b), which, under the view that ACD requires QR, entails a non-clausebound multi-step application of QR. If these judgments reflect the difficulty of QR (note, however, that the judgments are not based on psycholinguistic experiments only reported speaker intuitions), the question for the current analysis would be why multi-step QR in QP»QP contexts appears to be harder than high ACD resolution. I propose that the difference in judgments as given in (23a,b) is masked by a property that facilitates ACD in these contexts. Specifically, for the sentence in (23b), only the matrix VP can function as the antecedent of the elided VP since the auxiliary *did* would not be compatible with the embedded VP. If a narrow antecedent is intended, the auxiliary would have to be *was* as in (23c). After a quick Italian detour emphasizing the relevance of the unavailability of low ellipsis resolution, I summarize experimental evidence which has shown that when this property is avoided, ACD with matrix VP resolution is also judged as degraded/difficult, which supports the hypothesis that ACD-related QR does indeed also impose a processing cost similar to the one we observed for non ACD-related QR.

- (23) a. A middle school teacher claimed to be about to catch each problem student.
*v»»» [Cecchetto 2004: 388, (92)]
- c. A middle school teacher claimed to be about to catch each problem student

Syrett and Lidz 2011 and Sugawara et al. 2013. The aim and focus of these studies was different, but put together, they point to the validity of the hypothesis that ACD resolution involving multi-step QR is difficult but facilitated when more local options are excluded via a mismatching auxiliary. First, as shown in Syrett and Lidz 2011, in contexts without an auxiliary mismatch determining which antecedent VP is possible and which isn't, ACD does pose significant processing difficulties. Syrett and Lidz 2011 tested the availability of embedded and matrix VP ellipsis and ACD in cases such as (25). The results for ambiguous VP ellipsis (see the first row of the table below) show that adults accept both embedded and matrix antecedents for VP ellipsis at a high rate (in fact the matrix readings received a higher rate than the embedded readings). However, when ambiguous ACD is involved as in (25b-d), which could be resolved in two ways, matrix readings drop significantly. In case of infinitives, matrix readings are still accepted at a rate of 50%, but in finite contexts, these rates drop to below 20%.

- (25) a. *Clifford asked Goofy to read the [big/small] books because Scooby did.* VPE
 b. *Miss Piggy wanted to drive every car that Kermit did.* ACD INF
 c. *Clifford asked Goofy to read every book that Scooby did.* ACD INF
 d. *Clifford said that Goofy read every book that Scooby did.* ACD FIN

Adults: Percentages of acceptance of puppet's (true) statements	Embedded	Matrix
VPE (no QR)	81%	94%
ACD (infinitive)	68%	50%
ACD (finite)	88%	19%

Thus adults show a clear bias for embedded scope/ellipsis resolution, which could be taken to reflect that non-local (multi-step) QR is also difficult in ACD contexts in contrast to matrix VP ellipsis which does not require QR.

Second, addressing the question of why the acceptance rate for ACD was rather low in Syrett and Lidz 2011 experiments, Sugawara et al. 2013 tested unambiguous ACD contexts such as (26), and observed that the accuracy rates for adults are 95% for both short and long QR (p. 9). Thus the hypothesis that predetermined ACD resolution (and unavailability of a less costly derivation) voids the processing cost for multi-step QR is supported by these psycholinguistic findings.

the elided VP undergoes QR outside the antecedent VP *before* that QP merges with the relative clause. Since the relative clause appears to the right of the antecedent VP, the covertly moved QP has to also occur on the right (to be properly modified by the relative clause), and as a consequence, QR has to be seen as rightward movement in these cases. Suppose now that rightward QR *only* occurs in ACD contexts, or in other words, only when there is evidence for rightward movement—when a right-adjoined overt XP which is required to merge with the QP indicates the landing site of QR. QR which applies to take scope over another QP has to be the usual leftward movement. This has interesting consequences for the suggestion made in the previous section that QR is costly since it is not a filler-gap dependency (thanks to J. Bobaljik for sparking this idea). In 'regular' QR, the gap precedes the filler, and this is what makes processing more costly. However, if ACD-related QR is indeed rightward movement, then, for the purpose of processing, this form of QR is a filler-gap dependency, thus it would not trigger the additional cost associated with covert movement but should be more comparable to overt movement. Further experiments will show whether this hypothesis is tenable.

- (26) a. *Cookie Monster wanted to be the same thing that Dora is.*
 b. *Cookie Monster wanted to be the same thing that Dora did.*
 [Sugawara et al. 2013: 5, (10a,b)]

6. Conclusion

The main proposal of this paper is that QR is not subject to special locality or domain restrictions but that differences observed between overt and covert movement are the result of an increased processing cost associated with multiple steps of covert movement. Based on a scale of difficulty observed for QR from different types of clausal complements it was shown that speakers' acceptance of non-local QR is gradient and tracks syntactic complexity defined over clausal domains. One suggestion put forward was that syntactic complexity requires intermediate steps of movement, which yield copies that are semantically vacuous and, by hypothesis, costly. Since QR involves a retrospective search in parsing such tracing back of semantically vacuous steps is more demanding than parsing filler-gap dependencies. Many points raised still await experimental confirmation, but the paper has outlined what several of the predictions are and what to further test.

If the conclusions can be maintained, attributing the distribution of QR across different clausal domains to processing difficulties rather than 'hard' syntactic constraints captures the availability of QR as diagnosed by ACD, the variability in judgments, the gradient difficulty of QR in different syntactic contexts, and allows a uniform approach to the locality of A'-movement including QR.

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