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CHAPTER 5

QUANTIFIER RAISING & ELLIPSIS

1 Introduction

1.1 Scope-shifting operations

It is well known that simplex clauses with more than one quantificational expression can receive an ambiguous interpretation.[1] For instance, the sentence in (1) has two readings. According to Bruening (2001:233), *a different boy* can be interpreted contextually (i.e. *different* with respect to some contextually salient boy or set of boys), in which case this boy has been seen by Jill in all houses. Alternatively, boys can vary with houses. In the former interpretation, the existential quantifier *a* outscopes the universal quantifier *each*. In the latter, the universal takes scope over the existential.

(1) [cf. Bruening 2001:233, (1a)]
Jill saw a different boy in each house. $(\exists > \forall)$, $(\forall > \exists)$

Based on such scope interactions of quantified expressions, it has been proposed that the hierarchical order of quantifiers can be changed through a Quantifier Raising operation (QR, cf. Chomsky 1977; May 1977, 1985).[2] QR creates a new scope

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[1] This section presents a brief sketch of sentences that involve multiple quantification and of the scope-shifting operations that have been proposed to deal with this phenomenon. It is by no means my intention to give a complete picture and analysis of all possible scopal interactions. I refer the reader to the literature mentioned in this section for extensive discussion.

[2] Sag (1976:108) talks about an optional "scope jumping" rule. May (1977, 1985) assumes that a quantifier phrase must always undergo QR. The now common idea is that scope-shifting operations are optional (cf. Fox 2000; Sauerland 2000b; Miyagawa 2006, 2011). See section 3.2, though, on obligatory QR.

relation by raising one quantifier above (i.e. to a position c-commanding) the scope position of another quantifier. The operation of QR is invisible ('covert') in English, i.e. it does not affect phonology.

In May's (1977) original conception, QR is an adjunction operation, adjoining all quantificational constituents (arguments and adjuncts) to TP.[3] As such, the operation of QR is very free. It reorders quantifiers by moving and adjoining them in any order. By permitting quantifiers to adjoin in any order, ambiguity is derived. To obtain the two readings of (1), QR can either apply first to the direct object and then to the object of the preposition, as in (2)a, or vice versa, as in (2)b.[4] As such, a scopally ambiguous sentence is associated with two syntactic representations, "each of which is mapped to a distinct semantic interpretation" (Johnson & Tomioka 1998:185).

(2) [cf. Bruening 2001:233, (1b)-(1c)]

a. [$_{TP}$ each house$_2$ [$_{TP}$ a different boy$_1$ [$_{TP}$ Jill saw t_1 in t_2]]]. ($\forall > \exists$)

b. [$_{TP}$ a different boy$_2$ [$_{TP}$ each house$_1$ [$_{TP}$ Jill saw t_2 in t_1]]]. ($\exists > \forall$)

It is very much debated in the literature whether the final landing site of QR is indeed situated in the TP area, as May proposed, or in the vP area. Consider the sentence in (3), which contains two quantified phrases, one in subject position and one in object position.

(3) [Cecchetto 2004:347, (1)]

A technician inspected every plane. ($\exists > \forall$), ($\forall > \exists$)

This sentence is scopally ambiguous.[5] It has an interpretation in which one and the same technician inspected all planes, but also one in which, if there are fifty planes, there can be fifty different technicians who inspected them (this reading can be brought out more clearly by adding *different* before *technician*). The first situation results from a configuration in which the subject existential quantifier c-commands

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[3] To be precise, the clausal node targeted by QR in May's (1977, 1985) original proposal is called 'S'.

[4] May (1985) adjusts this idea and proposes that an ambiguous sentence is associated with only one syntactic representation. He introduces the *Scope Principe,* which states that when two quantifiers mutually c-command (or govern) each other, they can take arbitrary relative scope (May 1985:33). That is, two adjoined quantifiers can be interpreted in either scopal order.

[5] As noted by Sag (1976:58), some consider a sentence like (3) to be semantically unambiguous: the two situations described are just "two different ways of satisfying [the] truth conditions" of (3). I do not adopt this stance here.

and takes scope over the object quantifier (the surface scope reading, ∃ > ∀). The second interpretation corresponds to the inverse scope configuration: the object universal quantifier c-commands and takes scope over the subject existential quantifier (∀ > ∃). As already discussed, to obtain the inverse scope reading, May (1977, 1985) proposes that the QRed object is adjoined to TP, above the TP-adjoined QR-position of the subject, as in (4).[6]

(4) $[_{TP}$ every plane$_2$ $[_{TP}$ a technician$_1$ $[_{TP}$ t_1 inspected t_2]]]. (∀ > ∃)

Alternatively, it has been proposed that ambiguous scope readings come about through the interaction of (short) QR and Quantifier Lowering (QL)/reconstruction (cf. Hornstein 1995; Johnson & Tomioka 1998; Fox 2000; Johnson 2000; Takahashi 2003; among many others). While QR raises a QP from its surface position, QL/reconstruction restores a QP into one of the positions it moved from.[7] When QR raises a QP to a position asymmetrically c-commanding the position of a lowered/reconstructed QP, the inverse scope reading is obtained. These alternative proposals state that the object QP can be adjoined in (i.e. undergo QR to) the periphery of the verb phrase, in a position c-commanding the subject's base position (Spec,vP).[8] In that case, lowering/reconstruction of the QP subject to its original vP-internal position induces inverse scope, cf. (5).[9]

(5) $[_{TP}$ ___ $[_{vP}$ every plane$_1$ $[_{vP}$ a technician inspected t_1]]]. (∀ > ∃)

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[6] Alternatively, the object QP could undergo QR to a TP-adjoined position above the surface position of the subject in Spec,TP, cf. (i):

(i) $[_{TP}$ every plane$_2$ $[_{TP}$ a technician$_1$ T $[_{vP}$ t_1 inspected t_2]]]. (∀ > ∃)

[7] Chomsky (1995, section 4.7.4) takes QL to involve adjunction of the QP to a position that c-commands its trace position. Most proposals in the literature take QL/reconstruction to be an operation that restores a quantifier to (one of) its underlying position(s), though. According to some (cf. Johnson & Tomioka 1998; Johnson 2000), it is impossible for a subject to lower/reconstruct into the position in which its theta-role was assigned. The subject is then lowered to some intermediary position in the middle field of the clause.

Others (cf. Diesing 1992; Hornstein 1995; Bruening 2001), however, argue that a subject QP *can* be restored in its base position, where it got its theta-role (the specifier of vP). I adopt the latter proposal in this chapter.

[8] The idea that quantified phrases can adjoin to VP is already present in May (1985), where he modifies his (1977) proposal that all QPs adjoin to S/TP. Similarly, Sag (1976:108) notices "that quantifiers that are inside VP in shallow structure [i.e. surface structure – TT] are given what is essentially 'VP-scope' […]."

[9] For evidence that a subject quantifier needs to be interpreted in a lower position (i.e. not in its surface position Spec,TP) in order to fall within the scope of an object quantifier, see Hornstein (1995), Johnson & Tomioka (1998), Johnson (2000), Sauerland & Elbourne (2002), Miyagawa (2006, 2011). It should also be noted that the first three of these authors do not consider the shorter movement operation raising the object above the base position of the subject to be QR (see footnote 11).

In any case, some kind of scope-shifting operation (SSO) is needed to generate the inverse scope reading.[10] As noted by Cecchetto (2004:348), this scope-shifting mechanism "is usually conceived as a transformation that takes place in the syntactic derivation and that gives the 'right' input to the semantic component".[11]

1.2 Overview of this chapter

As already briefly discussed in section 6.3 of chapter 3, the operation Quantifier Raising can escape a verbal ellipsis site in English. This chapter provides an analysis of this observation in the cyclic, multidominant framework adopted in this dissertation. Johnson (2010a, 2011a) argues that QR is the result of Remerge of the NP-part of a quantificational phrase and Fusion between two adjacent heads, Q and D. In chapter 3, though, I argued that verbal ellipsis blocks Fusion Under Adjacency (and as such the formation of negative indefinites). Therefore, the fact that verbal ellipsis does not block QR seems surprising at first sight. In this chapter, I argue that this fact follows naturally if (i) one adopts the framework of cyclic Spell-Out and linearization I introduced in chapter 2 and implemented in chapter 3, and (ii) QR always targets vP (as a final or intermediate landing site).

This chapter is organized as follows. In the next section, I present the data showing that verbal ellipsis does not block QR. In section three, I discuss my

[10] The umbrella term 'scope-shifting operations' (SSOs), capturing both QR and QL/reconstruction, is used in Fox (1995b, 2000).

[11] In the literature, there are proposals that try to to reduce QR to A-movement for Case and agreement reasons to a position like Spec,AgrOP (cf. Takahashi 1993; Hornstein 1994, 1995; Pica & Snyder 1995; Schmitt 1995; Kitahara 1996). This analysis is primarily proposed in light of the very similar locality conditions on QR on the one hand and A-movement on the other. See Kennedy (1997), Johnson & Tomioka (1998), Johnson (2000), Bruening (2001), Tang (2001), Surányi (2002), and Cecchetto (2004) for problems with such accounts.

That said, the observation that QR differs from other types of A'-movement in being very local does raise problems for A'-movement accounts of QR (for an overview, see e.g. Hornstein 1995; Kennedy 1997; Fox 2000; Johnson 2000; Cecchetto 2004; Wurmbrand 2011a; Moulton to appear). To derive the locality conditions on QR, some authors have proposed to assimilate QR to scrambling (cf. Diesing 1992; Beck 1996; Johnson & Tomioka 1998; Johnson 2000). Although there is a parallelism between QR and schrambling, these proposals do "not say which grammatical principle is responsible for this common pattern" (Cecchetto 2004:353, fn.6). Miyagawa (2006, 2011) aims to offer a unified analysis, discussed briefly in section 3.2.2.

It seems that the locality of QR can be captured by adopting Fox's (1995b, 2000) ideas that principles like *Scope Economy* and *Shortest Move* restrict the length of QR considerably. Fox's proposals are discussed and adopted further on in this chapter.

For an implementation of the locality of QR in a phase-based framework, deriving the locality conditions from the interaction between Fox's economy principles and the PIC, see for instance Cecchetto (2004), Miyagawa (2006, 2011), and Wurmbrand (2011a,b).

multidominant, cyclic analysis of QR in English. Subsection 3.1 introduces Johnson's (2010a, 2011a) proposal that QR involves Remerge and Fusion. Subsections 3.2 and 3.3 discuss proposals that QR always targets vP (e.g. Heim & Kratzer 1998; Fox 2000; Legate 2003; Miyagawa 2006, 2011; Akahane 2008). In subsection 3.4, I incorporate the proposals from subsections 3.1, 3.2, and 3.3 into the cyclic Spell-Out and linearization model from chapters 2 and 3 and show how it follows that QR can escape verbal ellipsis. Section four concludes.

2 QR can escape a verbal ellipsis site: The data

In the previous section, I discussed how two quantificational expressions in an English simple clause can display ambiguous scope relative to each other and how scope-shifting operations like QR can give rise to this scopal ambiguity. This section focuses on the interaction between quantificational expressions in verbal ellipsis contexts. I present data showing that the operation of QR is not blocked in verbal ellipsis. These data concern QR of an object QP over a subject QP (subsection 2.2), QR of an object QP over sentential negation (subsection 2.3), and QR of an object QP over a modal (subsection 2.4). Before discussing the data, I introduce Fox's (2000) principle of Scope Economy in subsection 2.1. Fox argues that verbal ellipsis provides evidence for Scope Economy, as is also discussed in this chapter.

2.1 Scope Economy

The application of scope-shifting operations like QR and QL/reconstruction needs to be constrained. Consider sentences like those in (6):

(6) [cf. Sag 1976:57-60, (1.3.1)-(1.3.6)]
  a. Someone hit everyone.
  b. Bill hit everyone.

Sag (1976:58) notes that "someone who uttered [(6)a] would have told the truth in at least two situations. First, if there was some individual a who hit every individual in the relevant domain of discourse (with the possible exception of himself), and secondly, if everyone (in the relevant domain of discourse) was hit by someone, but not necessarily by the same person." That is, the sentence in (6)a is scopally ambiguous, with the first situation reflecting surface scope and the second one corresponding to inverse scope. Note, though, that (6)b, contains only one quantified expression, as the R-expression *Bill* is not quantificational. In this sentence, the inverse scope relation resulting from raising the QP *everyone* over the R-expression *Bill* is equivalent to the surface scope relation. Fox (2000:20) calls sentences that are semantically equivalent under their different scopal relationships "scopally uninformative".

Fox (2000) proposes that scopally uninformative sentences are restricted to surface scope. He argues that operations like QR are restricted by principles of (interpretation-sensitive) Economy (or, more broadly, by principles of 'least effort'). According to Fox (1995b, 2000), Economy considerations require each step of (possibly successive-cyclic) QR to be motivated.[12] The position of a quantificational expression can only be changed when this operation yields a semantic effect; it must give rise to an interpretation that would otherwise not be available. The principle of *Scope Economy* – also independently proposed in Tada (1993) and Reinhart (1994, 1995/2006, 1997a) – is given in (7):[13]

(7) *Economy condition on scope shifting (Scope Economy)*
Scope-shifting operations (SSOs) cannot be semantically vacuous.
[Fox 2000:3, (1)]

It follows from Scope Economy that reversing the relative scope of two quantified expressions is only possible in a situation where inverse scope is semantically distinct from surface scope. Thus, in (6)b, QR cannot apply to the object quantifier *everyone* for the purpose of taking scope over the subject *Bill*: because of Scope Economy, there can be no QR when it does not affect the semantics. (6)b is therefore restricted to surface scope. QR can, however, apply in (6)a because it has an interpretational effect: inverse scope is not semantically equivalent to surface scope in this sentence.

Fox (2000) provides compelling arguments for Scope Economy based on verbal ellipsis constructions. These are discussed further on in this chapter.

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[12] That is, quantifier movement must be motivated either by scope shifting or for independent reasons (such as type considerations). For the latter case, see the discussion in section 3.2.1.

[13] As noted by Fox (2000:28), "we would like to know how the cognitive system in which an SSO applies (syntax) determines whether or not an application of an SSO is semantically vacuous". He suggests "that there is a very narrow class of formal logical properties that certain words have": these properties alone "are accessible to syntax" and "determine whether or not an SSO can apply". I refer the reader to Fox (2000), especially section 2.5, for details and discussion.

2.2 Two QPs in verbal ellipsis

This section discusses how two quantificational DPs interact scopally in verbal ellipsis contexts. The data are well known from the literature, especially Sag (1976), Williams (1977), Hirschbühler (1982), Fiengo & May (1994), and Fox (1995b, 2000). The crucial contrast is the one in (8)b-(8)c:

(8) [cf. Fox 2000:4, (9a)-(10a); Fox 2000:30, (20)-(21)-(22e)]

a. Some boy admires every teacher. (∃ > ∀), (∀ > ∃)

b. Some boy admires every teacher. Mary does ⟨~~admire every teacher~~⟩, too. (∃ > ∀), (*∀ > ∃)

c. Some boy admires every teacher. Some girl does ⟨~~admire every teacher~~⟩, too. (∃ > ∀), (∀ > ∃)

The non-elliptical sentence in (8)a is scopally ambiguous in isolation. When this sentence serves as the antecedent for verbal ellipsis in (8)b, however, it no longer admits scopal variation. Inverse scope is impossible in this example; only surface scope remains. Sag (1976) and Williams (1977) took sentences like (8)b to show that ellipsis blocks inverse scope altogether, and indeed, when only considering the contrast between (8)a and (8)b, one might be tempted to conclude that QR of the object universal quantifier (or QL/reconstruction of the subject existential quantifier) is blocked in verbal ellipsis contexts. Crucially, though, Hirschbühler (1982) and Fox (2000) have demonstrated that this conclusion is false. As a sentence like (8)c shows, inverse scope is possible when (8)a antecedes verbal ellipsis. Thus, there is no general ban on inverse scope in verbal ellipsis constructions and verbal ellipsis does not as a rule block QR (or QL).

The authors mentioned above have proposed various accounts to deal with the contrast in (8)b-(8)c. I adopt Fox's (2000) proposal, which states that the contrast is due to the fact that the elliptical sentence in (8)c is scopally informative, while the one in (8)b is not (i.e. it is semantically identical under surface and inverse scope, see above, section 2.1).

According to Fox (2000), the lack of inverse scope in (8)b is due to a violation of Parallelism. It is well known that ellipsis is subject to a parallelism condition, which says that the ellipsis site and its antecedent must be parallel in form (cf. Lasnik 1972;

Sag 1976; Tancredi 1992; Chomsky & Lasnik 1993). Fox formulates the principle of Parallelism as in (9): [14]

(9) *Parallelism (a consequence of)*
In an ellipsis construction, the scope-bearing elements in the antecedent clause β_A must receive scope parallel to that of the corresponding elements in the ellipsis sentence β_E. [Fox 2000:31; Fox 2000:32, (24)]

The elliptical sentence in (8)b contains only one quantificational expression (the object universal quantifier *every teacher*); the subject *Mary* is an R-expression. Therefore, inverse scope and surface scope are not interpretively distinct, and this sentence is scopally uninformative. Because of Scope Economy (cf. section 2.1), the elliptical sentence does not allow scope shifting (QR or QL), as this operation would be semantically vacuous. Only surface scope is allowed. Parallelism requires the antecedent to have a parallel scopal interpretation. Because of Parallelism, then, there can be no scope-shifting operation in the antecedent either, hence the unambiguous scope relation. Only when the antecedent is interpreted with a surface scope reading, verbal ellipsis is possible. As such, the scopally uninformative elliptical clause disambiguates its antecedent: it restricts an otherwise ambiguous sentence to one scope.

In (8)c, on the other hand, both the antecedent and the elliptical clause are semantically distinct under surface and inverse scope. Therefore, Scope Economy allows scope-shifting operations. Both surface scope and inverse scope readings are allowed in (8)c, provided antecedent and ellipsis site both exhibit the same scopal relation (because of Parallelism).[15] If the elliptical clause involves inverse scope, the antecedent must as well (and vice versa): "ambiguities do not multiply in ellipsis [...] contexts" (Fox 2000:32).[16] That is, the sentence in (10) either means that there is one particular guard and one particular policeman who are standing in front of all of the buildings (surface scope in both β_A and β_E) or that the guards and the policemen

[14] The authors mentioned note that Parallelism also holds in constructions that involve deaccenting (i.e. phonological reduction). Given that deaccenting is not a topic of this dissertation, the discussion of Parallelism here only considers ellipsis.

[15] Crucial in all this is that a scope-shifting operation is never licensed to satisfy Parallelism. See (Fox 2000:Ch.3) for discussion.

[16] There are certain circumstances under which β_E need not be directly isomorphic to β_A. Fox (2000) shows that in these cases, a sentence β_A' – which follows (together with reasonable presuppositions) from β_A – can be accommodated. As long as β_A' is isomorphic to β_E, Parallelism is satisfied. I gloss over this issue here. See Fox (2000:Ch.3) for discussion.

can vary with the buildings (inverse scope in both β_A and β_E). It cannot mean that there is one particular guard who is standing in front of all of the buildings and the policemen vary with the buildings (surface scope in β_A and inverse scope in β_E).

(10) [Hirschbühler 1982]
One guard is standing in front of every building, and one policeman is, too.

Based on these interactions between Scope Economy and Parallelism, Fox derives the following generalization:

(11) *The Ellipsis Scope Generalization*
In an ellipsis construction a quantifier can have nonlocal scope only if local scope will yield a different interpretation, both in the sentence that includes the elided VP and in the sentence that includes the antecedent VP.
[Fox 2000:135, (60)]

At first sight, this means that QR can escape a verbal ellipsis site, as long as Fox's Ellipsis Scope Generalization is obeyed. However, all of the cases discussed so far involve scopal interactions between two quantificational DPs. As was discussed in section 1.1, inverse scope in sentences like these could in theory be the result of two different derivations: either (i) QR of the object to the TP area past the position of the subject or (ii) a combination of QR of the object to the vP area past the base position of the subject and QL/reconstruction of the subject to its base position Spec,vP.[17]

In section 4 of chapter 3, it was proposed that verbal ellipsis targets the complement of T. The landing site of short QR (the vP area) is thus contained in the ellipsis site. On the basis of the cases discussed in this section, it can therefore not be established conclusively whether or not QR can escape an ellipsis site. If the object QP raises to the vP-area (and the subject lowers/reconstructs into its base position Spec,vP), the QRed object QP is part of the verbal ellipsis site. Only if it can be established that a QP has undergone QR to (at least) the TP-area (i.e. outside of T's complement), it can be substantiated that QR can escape a verbal ellipsis site. The

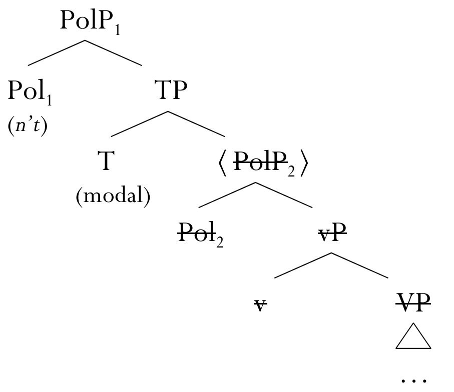
[17] As noted by Fox (2000:46, fn.35), there have been attempts to eliminate QR from the grammar altogether, reducing all scopal ambiguities to QL/reconstruction. The most relevant objection to these approaches (in the current context) is that "it is not clear how they would account for ambiguities other than those involving two arguments of a verb. For example, it is not clear how they would deal with the scopal ambiguity of object quantifiers and heads such as modals, negation, and attitude verbs [...]." Like Fox and many others, I stick to the idea that QR does indeed exist.

two options are schematically represented in (12), with ellipsis indicated by angled brackets:

(12) a. $[_{TP}$ OB$_{QP2}$ $[_{TP}$ SU$_{QP1}$ T ⟨ ~~$[_{vP}$ t_1 V t_2]]~~ ⟩]
b. $[_{TP}$ ___ T ⟨ ~~$[_{vP}$ OB$_{QP1}$ $[_{vP}$ SU$_{QP}$ V t_1]]~~ ⟩]

Hence, we have not yet established whether or not QR can escape a verbal ellipsis site.

A sentence can, however, also contain a quantificational DP and another scope-bearing logical term such as an intensional verb (like *seem*), a modal operator (like *can* or *should*), or sentential negation. In that case, scopal ambiguities arise between quantified phrases and these other operators. The following two subsections concentrate on sentential negation *n't* and modals respectively. Consider the structure in (13):

(13)


Given that modals license verbal ellipsis and that they are considered to be base generated in T (cf. section 3 in chapter 3 and section 2 in chapter 4), a quanticational DP outscoping a licensing modal in verbal ellipsis must have undergone QR to a position in the TP area (or higher), that is, outside of the ellipsis site. When it comes to sentential negation, I consider the clausal structure to contain two PolPs, one below and one above TP, that is, one inside and one outside the verbal ellipsis site (cf. sections 3 and 4 of chapter 3). Recall that I argued that the contracted negation *n't* realizes the high head Pol$_1$ (cf. section 3.1.3 of chapter 3). Thus, if a quantified DP outscopes contracted negation *n't* in verbal ellipsis, it must have QRed to a position above Pol$_1$, i.e. it must have escaped the ellipsis site.

2.3 An object QP and sentential negation *n't* in verbal ellipsis

This section considers the interaction between a quantificational object DP and the sentential negator *n't* in verbal ellipsis. Recall that the contracted negation *n't* realizes the high head Pol_1 above TP (cf. section 3.1.3 of chapter 3).

As shown in (14), sentences containing these two quantificational elements are ambiguous: (14)a can have both the interpretation in (14)b and (14)c. As noted by Johnson & Tomioka (1998:187), in a situation where Jill answered half of the questions, (14)a would be true under the interpretation (14)b, but not under the interpretation (14)c. (14)b corresponds to the surface scope reading, (14)c to the inverse scope reading.

(14) [cf. Johnson & Tomioka 1998:186, (5)]

a. Jill didn't answer two thirds of the questions on the exam.

$(\neg > ^2\!/_3), (^2\!/_3 > \neg)$

b. Jill answered less than two thirds of the questions on the exam.

c. Jill left two thirds of the questions unanswered.

Similarly, the sentence in (15), with sentential negation *n't* and the quantifier *many* in the object DP, "can report that the number of questions Gary didn't answer is great (*many of the questions* has scope wider than *not*) as well as deny that Gary answered many questions (*many of the questions* has scope narrower than *not*)" (Johnson 2000:191).

(15) [cf. Johnson 2000:191, (13)]

Gary didn't answer many of the questions on the exam.

(¬ > *many*), (*many* > ¬)

A similarly ambiguous example, with the verb *give*, comes from Sauerland (2000b:4):

(16) [cf. Sauerland 2000b:4, (5)]

She didn't give me many dolls. (¬ > *many*), (*many* > ¬)

The same goes for a sentence containing *n't* and an object DP with the quantifier *almost everything*. The sentence in (17) can assert that there is almost nothing I have read (*almost everything* has scope wider than negation) or it can deny that I have read almost everything (*almost everything* has scope narrower than negation). Johnson (2000:192) shows that these interpretations are distinct by considering the situation in which I have read everything: "In that (remarkable) situation, [(17)] is false on the first (object wide-scope) interpretation, but true under the second (object narrow-scope) interpretation."

(17) [cf. Johnson 2000:192, (14a)]
I haven't read almost everything.
($\neg$ > *almost everything*), (*almost everything* > $\neg$)

The availability of the inverse scope interpretation in (14)-(17) shows that QR can bring object quantifiers past the position of sentential negation realized by *n't* (see, for instance, Johnson & Tomioka 1998; Johnson 2000; Fox 2000; Sauerland 2000b; Bruening 2001).[18]

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[18] This contradicts the claim in von Fintel & Iatridou (2003:183-184) that "Scope-QR cannot easily cross sentential negation [nor] a negative quantifier". This claim is based on examples like those in (i):

(i) [von Fintel & Iatridou 2003:183-184, (40)-(42)]
a. John didn't touch every dessert. (*? $\forall > \neg$)
b. Nobody touched every dessert. (*? $\forall > \neg$)

As noted by Iatridou & Zeijlstra (2010:324) and Iatridou & Sichel (2011:623-624), however, in the following sentence, the negative DP cannot outscope the higher universal quantifier, i.e. (ii) does not give rise to an inverse reading:

(ii) [Iatridou & Zeijlstra 2010:324, (31)]
Everybody touched no dessert. (*? $\neg\exists > \forall$)

According to Iatridou & Zeijlstra (2010:324), the example in (ii) shows that the relative scopal ordering of the negative DP and the universal quantifier remains frozen. It does not necessarily show that *no dessert* is forbidden to raise across the subject QP: the subject could be forced to raise across the object again. Combining (ii) with (i), it seems that the relative scope of the universal quantifier *every* and negation (whether sentential negation or a negative DP) is fixed, restricted to surface scope. In any case, this restriction to surface scope does not seem to extend to the relative scopal ordering of negation and quantifiers like *many, two thirds of* or *more than three.* As shown in example (17), even adding *almost* to the universal quantifier *every* allows it to outscope negation. I therefore take Fox's argumentation to be valid and the examples in this footnote to concern independent issues (cf. "[t]he more general question as to what blocks the inverse reading in [(i)-(ii)] remains an open question" (Iatridou & Zeijlstra 2010:324)).

Another – related – observation can be found in Fox (2000:144, fn.5). In the examples in (iii) – originally from Jackendoff (1972) – there seems to be a preference for wide scope of *many* over negation in (iiia), while in (iiib), negation prefers to have wide scope relative to *many.*

(iii) [Fox 2000:144, fn.5, (i)]
a. Many arrows didn't hit the target.
b. The target wasn't hit by many arrows. (*continued on the next page*)

Having established that a quantificational object can undergo QR to outscope sentential negation *n't*, let us consider what happens in verbal ellipsis contexts. Fox (2000:45-46) discusses the following sentences:

(18) [cf. Fox 2000:45, (46)]
a. Danny Fox doesn't speak more than three languages.
((¬ > *more than 3*) *true*, (*more than 3* > ¬) *true*)
b. Ken Hale doesn't speak more than three languages.
((¬ > *more than 3*) *false*, (*more than 3* > ¬) *true*)

Fox (2000:45) notes that "[a]lthough both sentences are ambiguous, there is a difference between them that has to do with our knowledge of the world, and that helps us in conducting an important experiment. The sentence in [(18)a] is true irrespective of the relative scope of the object and of negation. The sentence in [(18)b], by contrast, is true only if the object has wide scope over negation. We can thus embed [(18)] in ellipsis constructions and use its truth value to determine which of its readings are available." In (19), the sentences in (18) are embedded in verbal ellipsis contexts:

(19) [cf. Fox 2000:45, (46)]
a. Danny Fox doesn't speak more than three languages. Rob Pensalfini does. (*true*)
b. Ken Hale doesn't speak more than three languages. Rob Pensalfini does. (*false*)
c. Ken Hale doesn't speak more than three languages. Rob Pensalfini doesn't as well. (*true or false*)

The contrast between (19)a and (19)b, the former true, the latter false, shows that the antecedent must be interpreted with the sentential negation outscoping the quantified object, i.e. with its surface scope reading. The ellipsis site in (19)a and (19)b is scopally uninformative, as it contains only one quantificational element (*more than three languages*): there is no negation and no other quantificational DP. Therefore, Scope Economy will block scope-shifting operations in the elliptical

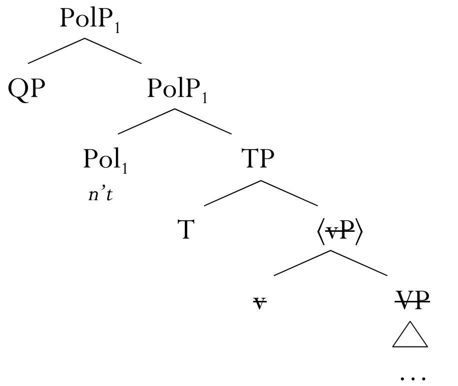
As noted by Fox, these examples "demonstrate that overt movement affects interpretive preferences. However, they do not demonstrate that overt movement yields interpretations that would be unavailable otherwise. Given the availability of covert scope-shifting operations, both sentences in [(iii)] are ambiguous." In the same footnote, Fox also notes that there "might be additional constraints on specific types of quantifiers".

clause. Parallelism will then block SSOs in the antecedent as well, resulting in the sentence only having a surface scope reading.

In (19)c, on the other hand, the sentence containing the ellipsis site is scopally informative, as it contains two quantificational elements (*more than three languages* and sentential negation *n't*). The antecedent is scopally informative as well. Scope Economy will hence allow for a scope-shifting operation giving rise to the inverse scope reading, as long as Parallelism is obeyed. Given that negation cannot lower (cf. Iatridou & Zeijlstra 2010; Iatridou & Sichel 2011), this scope-shifting operation can only be QR. As none of Fox's principles block QR, the question that concerns us now is whether the quantificational object can indeed raise to outscope the sentential negation. The fact that (19)c is ambiguous (it is either true or false) shows that both the surface and the inverse scope reading are available and hence that the object QP can undergo QR to scope above the negation.

Importantly, as discussed in section 3.1.3 of chapter 3, the contracted sentential negation *n't* always and only realizes the high polarity head Pol$_1$. This means that QR of the object QP needs to target a position above this head (e.g. at least adjoining to PolP$_1$) in order for the QP to c-command and outscope the negation in Pol$_1$. Pol$_1$ is situated above T, the licensor of verbal ellipsis (section 4.1.1 of chapter 3). Given all this, we can conclude that the landing site of QR is outside of the ellipsis site (the complement of the licensor T). This is illustrated in the (simplified) structure in (20). Thus, the example in (19)c shows that QR can escape a verbal ellipsis site, i.e. that verbal ellipsis does not block QR.

(20)



2.4 An object QP and a modal in verbal ellipsis

It is well known that scopal ambiguities arise between quantified phrases and modals. An example is given in (21):

(21) [cf. Johnson 2000:192, (14b)]
I can believe every one of Will's claims. (*can* > ∀), (∀ > *can*)

The sentence in (21) can assert that for every one of Will's claims, there is a possibility of my believing it (*every* has scope wider than *can*) or it can report that there is a possibility that I will find all of Will's claims believable (*every* has scope narrower than *can*). Johnson (2000:192) illustrates that these are distinct interpretations in the following way: "It could be, for instance, that I find each of Will's claims individually plausible, but know that together they are inconsistent. Inconsistency is a belief buster for me, so in this situation [(21)] will be true on its object wide-scope interpretation, but not its object narrow-scope interpretation." As such, the ambiguity of sentence (21) shows that an object quantificational DP can gain wider scope than the modal *can*. Hence, objects can undergo QR to a position above the modal. It was argued in section 3 of chapter 3 and section 2 of chapter 4 (cf. also Johnson 2000:193) that modals are base generated and interpreted in T. Thus, QR of the object QP must target a position at least as high as TP.[19]

Let us take a look at a case of verbal ellipsis where the antecedent contains an object QP and a modal, and verbal ellipsis is licensed by that same modal. Consider the non-elliptical sentence in (22) and its elliptical counterpart in (23):

(22) [Suppose someone wants to give you a present, gives you a list, and says:]
You can order every item on the list.

Reading 1: The person is very generous; you are allowed to order all items on the list. (*can* > ∀)

Reading 2: You will receive a present, but the present has to be one of the items on the list. For every item that is on the list, though, you are allowed to choose it. That is, you are allowed to choose whatever item you like from the list. (∀ > *can*)

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[19] The modal *can* in (21) has an epistemic possibility reading. In section 2.3 of chapter 4, I proposed that epistemic *can* is merged in T, after which it moves further on to a higher head Mod. Thus, the object QP undergoes QR to a position at least as high as TP, and potentially even higher than Mod.

(23) [Suppose someone wants to give you and John a present, gives you a list, and says:]
You can order every item on the list and John can too.

To the extent that the inverse scope reading ($\forall$ > *can*) is available in the non-elliptical sentence for my informants, it is also available in the elliptical one.[20]

As pointed out by one of my informants, the sentence in (22) can more easily get two readings when used in a different context.[21] If *you* in the sentence in (22) is interpreted as generic 'one', then the inverse scope reading becomes readily available. Consider the sentence in (22) with *you* interpreted as a generic. This sentence can for instance be uttered as customer information regarding the purchasing of band merchandise on a website. In this situation, there are two readings available:[22]

(24) a. There is nothing to prevent a customer from ordering every single item off the list if (s)he so desires. (*can* > $\forall$)
b. The website is making a claim about the fact that all the items on the list are in stock, and hence each and every one is available to be ordered. ($\forall$ > *can*)

Taking this into consideration, let us also put the elliptical clause in a 'customer context':[23]

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[20] Most of the speakers I consulted have some trouble with the inverse scope reading ($\forall$ > *can*) in both the non-elliptical and the elliptical sentences in (22) and (23). This is presumably due to the fact that *You can order any item on the list*, with free choice *any*, is the preferred way of expressing this reading, which could be an interfering factor.

[21] Thanks to Rachel Nye (p.c.) for the suggestion and for discussing this. All conclusions drawn here are of course my responsibility.

[22] The readings of *can* seem to differ somewhat in (22) vs. (24). In (22), the speaker allows the addressee to do something. In (24), it is the circumstances that allow the addressee to do something: no reference is being made to any particular source of permission. In both cases, however, the permission is put on the addressee by an external force (the speaker, circumstances of a certain kind, …), i.e. the source of modality is 'participant-external'. As such, these are cases of deontic modality, which is a hyponym of participant-external modality (cf. Van der Auwera & Plungian 1998; Van der Auwera 1999; Ziegeler 2006; Aelbrecht 2009). I take this to be minor differences that should not concern us here. The primary focus is whether or not a QP can outscope the modal. As also noted by Aelbrecht (2009:21, fn.16) in the discussion of different types of deontic readings, "there seems to be no syntactic difference related to the semantic distinction".

[23] As noted by Jeroen van Craenenbroeck (p.c.), because of Parallelism, it is predicted that the question in (i) can only have a surface scope reading (can > $\forall$) (given that the elliptical clause is scopally uninformative). This prediction seems to be borne out.

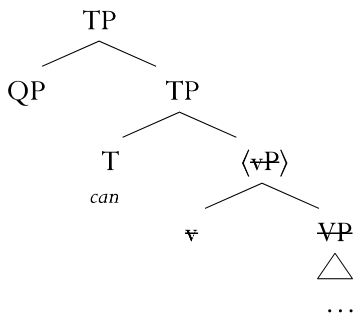
(i) Q: Can you order every item on the list?
A: Hell yeah! I just did.

(25) [The manager of a website/store/… says:]
Customers asked me whether they could order every item on the list and I told them they could.

(26) [In a FAQ list on a website:]
Can you/one order every item on the list? Of course you/one can.

According to my informants, both readings discussed above are available in the elliptical clauses as well. As such, it can be concluded that, when inverse scope is available in a non-elliptical clause containing a modal and a quantificational object, it is available in its elliptical counterpart as well. As this inverse scope is the result of an object QP undergoing QR to a position c-commanding the modal, this means that QR of the object QP is able to escape a verbal ellipsis site (to a position above the licensing modal in T).

(27)



2.5 Summary

In this section, I discussed the interaction of QR and verbal ellipsis. It was shown (inconclusively) on the basis of scope interactions between subject and object QPs and (conclusively) on the basis of scope interactions between an object QP and another quantificational operator (sentential negation *n't* or a modal) that QR can raise an object QP out of a verbal ellipsis site.

3 Analyzing QR out of ellipsis

In this section, I develop my multidominant, cyclic analysis of QR in English. Section (3.1) introduces Johnson's (2010a, 2011a) multidominant analysis of QR, QR being the result of remerge of the NP-part of a quantified phrase. Johnson also proposes that Fusion between the quantificational head Q and the determiner D of the object DP. I argue in section (3.4) that verbal ellipsis does not block QR follows if QR is always short, targeting vP (sections 3.2 and 3.3) and if Spell-Out and linearization occurs cyclically, as proposed in the previous chapters of this dissertation.

3.1 QR as remerge + fusion (Johnson 2010a, 2011a)[24]

The quote in (28) contains Johnson's (2010a, 2011a) description of 'movement':[25]

(28) "Movement of DPs [...] is the result of putting the terminals in a DP together in such a fashion that they spread across a sentence. The DPs that do this in the cases of QR and WH-movement are kinds of definite descriptions; those definite descriptions form the variable part of the movement relation. For morphological reasons, these definite descriptions form a constituent with an operator. In the case of WH-movement, this operator is the question morpheme. In the case of QR, this operator is the quantifier. While the morphology requires that these operators be in construction with the definite description, their semantics requires that they be merged in positions that are distant from those definite descriptions. These conflicting requirements are met by letting the relevant constituents stand in more than one position in the phrase marker. This is movement."

[Johnson 2011a:2-3]

QR is a semantic displacement operation in which the denotation associated with a

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[24] In very recent work, Johnson (2011b) departs from the proposal that QR involves Fusion. The analysis is replaced with an updated version of Contiguity (see section 6.4.1 in chapter 3). The basic idea is that the 'best' linearization of a structure is one that creates the fewest violations of Contiguity. The result of all this is that QR – almost 'accidentally' – is covert. I do not pursue this option here because the Fusion account seems more principled than the one proposed in Johnson (2011b) in that it also nicely handles the observations concerning negative indefinites discussed in chapter 3. Moreover, the Fusion account of QR (and of negative indefinites), combined with the cyclic Spell-Out model adopted in the previous chapters, gives us the desired result when it comes to the interaction with ellipsis. It remains to be seen whether all this can be made to follow from Contiguity.

As indicated by Kyle Johnson (p.c.), one motivation for abandoning the Fusion account might be the behavior of WH-in situ (combined with ACD). I leave the investigation of WH-in situ to future research.

[25] For Johnson's remerge analysis of WH-movement, see section 6.4.1 of chapter 3.

QP is applied at a position different from (higher than) the position in which it is spoken (Johnson 2011a:2). As movement sets up a binder-bindee relation, it is standardly assumed that in a process of movement, a silent variable is inserted in the bindee position. Johnson (2010a, 2011a), however, does not adopt this assumption. He proposes to model movement with remerge (i.e. Internal Merge, cf. section 2 of chapter 2): an element that has already been merged into one position is merged into a second one. The result is a multidominant phrase marker. As noted by Johnson (2011a:15), in a multidominant representation, one and the same phrase gets "different semantic interpretations depending on the positions it occupies: as a variable in its lowest position and as an operator in the highest position." Johnson assumes for QR, like for WH-movement (cf. section 6.4.1 of chapter 3), that it involves two components: (i) a DP in a lower position, which is given the denotation of a definite description and (ii) an operator in a higher position that binds this definite description, i.e. the definite description is interpreted as a variable bound by the operator.[26] The semantics requires that the operator (the quantifier) be merged in a position distant from the definite description. The semantic structure of a QP is as follows: it consists of an operator, its restriction and its nuclear scope. The denotation associated with quantifiers requires the operator to "combine first with the NP in the quantificational DP and then with another predicate, one that corresponds to the scope of the quantifier" (Johnson 2011a:21).[27,28] As shown in the structure in (30), remerge puts an NP in two positions in QR. The determiner in the lower position and the quantifier in the higher position both combine semantically with the same NP. Remerge (QR) has the motivation or effect of widening the scope of the operator.

An example like (29) gets the representation in (30), where the operator Q (the universal quantifier ∀) combines semantically both with NP and with TP. The NP is both part of the object DP and the higher quantificational phrase; both D and Q combine semantically with the NP. The DP in the object position is a definite description, interpreted as a variable. The higher QP binds the variable introduced by the definite description. In the case of QR then, a multidominant analysis is

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[26] Johnson's (2010a, 2011a) proposal goes back to Engdahl (1980, 1986), and Fox (2003).

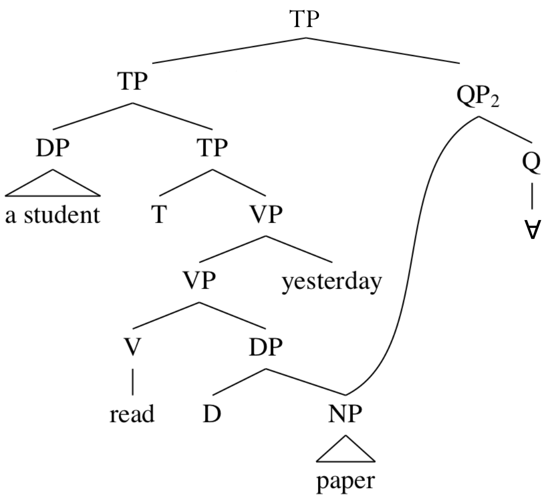
[27] As stressed by Johnson (2011a:21, fn.18), this presupposes that "the quantificational part of a quantificational DP can be expressed syntactically in a position different from where the quantificational DP is", a position which is defended in, for instance, Williams (1986, 1988), Beghelli (1993), Kitahara (1996), and Reinhart (1997b) (see Johnson 2011a:21, fn.18 for additional references).

[28] Thus, Johnson's analysis is close in spirit to Kennedy's (1997:669, fn.10) proposal that the syntactic operation QR "is driven by the need to generate a structure that permits the proper interpretation of a quantificational determiner."

motivated based on the semantics of the quantificational expression (unlike in the case of WH-movement, where Agree also played a significant role, cf. section 6.4.1 of chapter 3).

(29) [cf. Johnson 2011a:21, (48)]
A student read every paper yesterday.

(30) [cf. Johnson 2011a:24, (54)]



Although the components of a quantificational element spread across distant syntactic positions in a sentence, they are mapped onto a single word. Looking at (30), the question arises how the determiner in the DP in the lower position and the operator Q in the higher position can get mapped onto one lexical item. In the case of WH-movement, the form of the interrogative phrase depends on the presence of the Q-morpheme, because of the Agree-relation that holds between them (cf. section 6.4.1 in chapter 3). Agree requires the Probe to c-command the Goal, however. As there is no c-command relation between D and Q in, the mapping of D and Q onto one lexical item cannot be established via Agree in the case of Quantifier Raising.

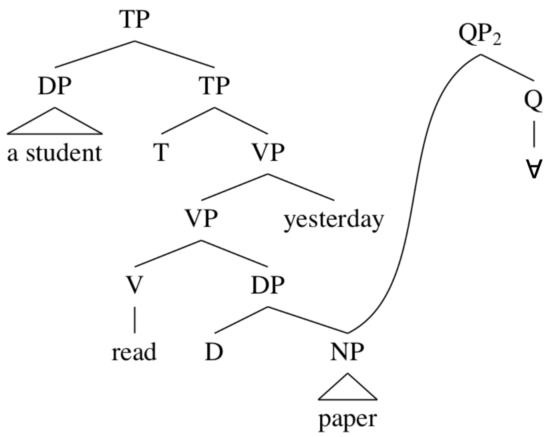
Johnson proposes that there is a morphological process Fusion (which I call 'Fusion Under Adjacency', see chapter 3) that combines two terminals into one, which is realized by one lexical item (*every* in the case of the universal quantifier ∀).[29] Fusion of two terminals is dependent on a locality condition: two terminals can fuse only if the linearization algorithm assigns them adjacent positions. Recall that Johnson has the specific definition of 'Adjacency' in (31), which I have adopted in chapter 3, adding (32):

(31) *Adjacency*
Two terminal items α and β are adjacent if the linearization algorithm puts nothing in between them. [cf. Johnson 2011a:25,fn.22]

(32) $\neg\exists x.(\alpha < x \;\&\; x < \beta)$ (and vice versa)

Johnson argues that the relevant adjacency becomes available when QP and TP are spelled out and linearized, but before they are merged together, that is, at the point of the derivation in (33):

(33) [cf. Johnson 2011a:24, (54)]



Recall that the linearization scheme applies to root nodes (section 3 in chapter 2), so it will apply to TP and QP independently. The result is (34):[30]

[29] Johnson (2011a:22, fn.20) sees corroborating evidence for his Fusion analysis of quantifiers in the fact that some quantificational determiners transparently consist of separate parts. For instance, he mentions the German quantificational determiner *jeder* 'each', which transparently decomposes into the universal quantifier *je* 'each' and the definite determiner *der* 'the' (cf. also Sauerland 2003). See also section 6.4.2 of chapter 3.

[30] Note that the linearization in (34)a is actually the result of the linearization algorithm applying to TP, producing an A, after which a subset of the ordered pairs corresponding to (*continued on the next page*)

(34) a. The linearization of TP in (33) =

a < student	student < T	read < D
a < T	student < read	read < paper
a < read	student < D	read < yesterday
a < D	student < paper	
a < yesterday	student < yesterday	D < paper
		D < yesterday
		paper < yesterday

b. The linearization of QP in (33) = { ∀ < paper }

The linearization algorithm has put nothing in between D and ∀ in (34): there is nothing that follows Q and precedes D (or vice versa). Hence, D and ∀ are allowed to fuse, after which they get mapped onto an appropriate vocabulary item (the quantifier *every* in this case). That is, *every* will occupy the positions assigned to D and ∀ in (34). In the end, the linearized string will be *a student read every newspaper yesterday*, with the QRed phrase spelled out in its original position. Because the linearization scheme applies before the QP merged into the larger structure (cf. section 4 for discussion), "the material that is in both the QP and the larger structure will get its position fixed relative to the rest of the structure before the QP's position in the larger structure can be computed. This is how the effect of making a QR'd term be spelled out in the lower position is achieved" (Johnson 2011a:25-26). To guarantee that the positions assigned cannot be altered at some later stage in the derivation, Johnson follows the well-known proposal that positions assigned by the linearization algorithm at some stage in the derivation cannot be changed later on (following Fox & Pesetsky (2003, 2004a,b), discussed in section 3.3 and 3.4 of chapter 2).[31]

Summarizing, Johnson (2010a, 2011a) proposes that QR should be analyzed as a combination of remerge and Fusion. As argued at length in chapter 3, the interaction

the asymmetric c-command relations in A is selected on the basis of language-specific requirements. On the basis of this subset, the linearization in (34)a produced. See sections 3.3 and 3.4 of chapter 2 and sections 3 and 4 of chapter 3.

[31] For a more detailed discussion of this proposal, comparing it with the account developed in this dissertation, see section 4 of this chapter.

of negative indefinites and ellipsis shows that verbal ellipsis (a PF-process) blocks Fusion Under Adjacency. If QR involves FUA and verbal ellipsis bleeds FUA, it is expected that verbal ellipsis blocks QR. This is, however, not the case. In section 2 of this chapter, it was established that QR can escape a verbal ellipsis site. At first sight, then, the proposal that QR involves Fusion seems incompatible with the fact that verbal ellipsis does not block QR. In the next sections, I show that the framework of chapters 2 and 3 can be maintained if we adopt the proposal that QR always targets vP (either as a final or an intermediate landing site). In the next sections (3.2 and 3.3), I first discuss the literature on obligatory short QR to vP. In sections 3.4 and 3.5, I work out a detailed analysis of QR escaping an ellipsis site, incorporating both the proposal of short QR and the framework of derivational ellipsis and cyclic Spell-Out developed in chapters 2 and 3.

3.2 Obligatory short QR

In the original proposal by May (1977, 1985), a quantificational phrase must always undergo QR, raising to a TP-adjoined position (see section 1.1 of this chapter). The now common idea is that scope-shifting operations (QR and QL/reconstruction) are optional (cf. Fox 2000; Sauerland 2000b; Miyagawa 2006, 2011). That is, in a sentence like (35), the quantificational object may or may not raise to the TP area (or higher), to a position above and c-commanding the modal in T.

(35) [cf. Johnson 2000:192, (14b)]
I can believe every one of Will's claims. (*can* > ∀, ∀ > *can*)

It has been proposed that object QPs (and unaccusative and passive subject QPs) are always obligatory affected by short QR, which targets the vP-area. This sets them apart from (transitive and unergative) subject QPs in Spec,vP and adjunct QPs adjoined in the vP-periphery, which are already present in the vP-area, as they have been merged here.

In this chapter, I adopt the idea that all QPs need to (have) be(en) in the vP-periphery. This vP-adjunction site can be either a final landing site or an intermediate landing site of successive-cyclic QR.[32] I follow Fox (2000), Miyagawa (2006, 2011), and Wurmbrand (2011a), amongst others, in arguing that the first

[32] Legate (2003), for instance, focuses on the first step in successive cyclic A'-movement/QR, where vP is not a final landing site, but an intermediate one.

short step of QR to the vP area is always obligatory, while further movement (e.g. to the TP area) is optional and subject to Scope Economy (cf. section 2.1 of this chapter).

In this section, I introduce some of the theoretical proposals that take QR to always be short, targeting vP. Then, in the next section (3.3), I present some empirical arguments from the literature that A'-movement in general and QR in particular has a landing site in the vP-periphery.

3.2.1 OBLIGATORY QR AND SHORTEST MOVE

Recall that Fox (2000) argues that a scope-shifting operation can only occur if it is not semantically vacuous, as it is subject to Scope Economy (section 2.1 of this chapter). It has been proposed, however, that QR of an object quantifier out of its base position is also required in sentences like (36), despite the fact that this sentence contains only one quantificational expression. In this sentence, QR is not required to represent scope ambiguity, as inverse scope does not result in a new interpretation (the sentence is scopally uninformative).

(36) [cf. Cecchetto 2004:347, (2)]
John inspected every plane.

Fox (2000) and Wurmbrand (2011a) take there to be two types of QR. The first, discussed in sections 1 and 2 of this chapter, is scope-driven (subject to Scope Economy) and optional. The second type is need-based and obligatory.

Fox (2000) proposes that every object QP must undergo QR. The same idea is also found in Sauerland (2000b, 2005), Bruening (2001), Surányi (2002), Yatsushiro (2002), Cecchetto (2004), Jones (2006), and Akahane (2008). These authors assume that this obligatorily QR takes place for type reasons, following Heim & Kratzer (1998). Semantically, generalized quantifiers (Barwise & Cooper 1981) are second-order predicates of type ⟨*et,t*⟩. As such, they are not of the right type to combine with their sister if their sister is not a one-place predicate (e.g. a transitive verb like *love* or *inspect*, a two-place predicate which is of type ⟨*e,* ⟨*et*⟩⟩). Thus, object quantifiers are uninterpretable in situ. The type mismatch between the object QP and its sister (V) can be repaired by QR (see Heim & Kratzer 1998:178-179,184-188). This obligatory QR must move the object QP to the edge of a clause-denoting expression, a node that denotes a closed proposition (of type ⟨*t*⟩). Via λ-abstraction, this movement creates a one-place predicate (which is of of type ⟨*e,t*⟩). The QP undergoes QR to create a variable of type ⟨*e*⟩ that can combine with the transitive verb. As such, the output of QR is an interpretable structure. This operation is thus necessary for semantic composition in a sentence like (36); it is forced by type considerations. QR takes place in the syntactic component, ensuring a readable input for the semantic component and thus allowing for semantic composition (cf. Cecchetto 2004:348). If a QP is interpretable in its in situ or surface position, obligatory QR does not occur. Thus, obligatory QR is always "justified independently of scope reversal" (Fox 2000:60, fn.47).

Obligatory QR moves a QP to a position in which it can be interpreted. It must target a clause-denoting expression, a node that denotes a closed proposition (type *t*). As a proposition is only closed after combining with a subject, the QP must adjoin above the subject. Hence, the maximal projection of the head that projects the external argument is the first available position of the appropriate type. Assuming the vP-internal subject hypothesis, vP is therefore the lowest position where the quantifier can be interpreted (cf. Fox 1995b:285, fn.4).[33]

Fox (2000) argues that the quantifier needs to raise *only* to adjoin to vP (above the subject in Spec,vP). He introduces a locality condition on movement, *Shortest Move*, "with the hope that it follows from general principles of locality" (Fox 2000:23). Shortest Move ensures that QR is blocked when the same interpretation can be achieved by a shorter movement step. This means that obligatory QR must target the first closed propositional node (of type *t*) dominating the object: its landing site has to be vP. Thus, obligatory QR is extremely local. The principle of Shortest Move is given in (37). It has been adopted by, amongst others, Takahashi (2003) and Sauerland (2005).[34]

(37) *Shortest Move*
An instance of QR is restricted to the closest XP that dominates QP
(where XP ranges over clause-denoting maximal projections).
[cf. Fox 2000:63]

[33] Fox (2000) and others, e.g. Bruening (2001), consider vPs to be proposition-denoting. Not everyone does, however (cf. also May 1977, 1985). For example, according to Kim (2006), vP denotes an event. Kim maintains that QR is only motivated by a scope effect (that is, there is no obligatory QR). In this view, QPs cannot raise to proposition-denoting nodes because a QP cannot distribute over a proposition. Movement of a QP to a propositional node has no semantic effect and, therefore, this movement is not motivated. vPs (with verbs like *marry* and *expect*) denote an event (that is, events like 'marrying' or 'expecting'). As the event permits a distributive relation, the QP may be adjoined to vP. QR is motivated because it gives rise to a semantic effect: it distributes over an event. This approach does not seem unproblematic, however, as it is unclear how QR could target non-eventive vPs, such as individual-level predicates like *know* (cf. Oh 2001).

[34] It has also been rephrased in a phase-based framework by e.g. Legate (2003), Miyagawa (2006, 2011), Akahane (2008), and Wurmbrand (2011a). See section 3.2.2.

Fox (2000) introduces Shortest Move to deal with scopally uninformative sentences like (36). Recall that he argues that scopally uninformative sentences are restricted to surface scope (cf. section 2 of this chapter). Therefore, it needs to be ensured that an object QP does not raise above the subject position in scopally uninformative sentences. Consider the sentences in (38):

(38) [Fox 2000:23-24, (7a)-(8a)]
    a. A boy loves every girl.
    b. John loves every girl.

Suppose that QR can target any node of type *t*, i.e. that there is no Shortest Move principle. If only Scope Economy were to restrict QR, this would not ensure that obligatory QR would not cross the subject position in (38)b (by adjoining to TP). This is because movement of the object QP is independently motivated (by type considerations), and therefore not restricted by Scope Economy. If long distance obligatory QR is not an option, however, inverse scope can be excluded for (38)b. If obligatory QR is subject to Shortest Move, the object *every girl* will move to the vP-periphery in both (38)a and (38)b. The question then arises whether a second (optional) scope-shifting operation – either QR or QL/reconstruction – is licensed. Optional QR to a TP-adjoined position in (38)a is not semantically vacuous: the inverse scope reading differs from the surface scope reading. Scope Economy thus allows QR in (38)a. In (38)b, on the other hand, further QR is semantically vacuous. A second step of QR is thus not licensed by Scope Economy. Optional QL is also only allowed by Scope Economy in (38)a. Only in (38)a does QL/reconstruction of the subject into its base position Spec,vP yield a semantic effect. Given both Scope Economy and Shortest Move, the inverse scope reading is not available for (38)b. If there were no Shortest Move principle, it is unclear how inverse scope could be blocked for this scopally uninformative sentence. Thus, the operation of QR is constrained by locality (*Shortest Move*) and Scope Economy. It should be noted that Fox also takes optional QR to be necessarily short as well, just like obligatory QR: "optional QR targets the closest position that dominates the relevant scope-bearing element that is being crossed" (Fox 2000:66).

Fox (2000) first introduced Scope Economy to determine whether an *optional* SSO is licensed (cf. section 2). If the optional SSO has no semantic effect (i.e. if it does not reverse the relative scope of two quantified expressions), the movement step is unavailable. According to Fox (2000), the obligatory instance of short QR to the vP-periphery also has a semantic effect: the object QP needs to target a closed proposition (of type *t*). Therefore, he takes it to be conceivable that Economy applies to *obligatory* QR as well as to *optional* QR (Fox 2000:23, fn.5). That is, each step of possibly successive-cyclic QR needs to be independently motivated; no step can be semantically vacuous. For example, QR can raise a QP to a position in which it can be affected by a second instance of QR only if the first instance of QR has a semantic consequence of its own. That is, a step of QR must have a motivation other than simply allowing further movement of the QP.[35] Thus, Fox's account incorporates Collins's (1997) view that economy is computed derivationally (locally), instead of globally.

Fox's generalized idea of interpretation-sensitive Economy is also adopted by, for instance, Cecchetto (2004) and Miyagawa (2006, 2011). It can be formulated as in (39):[36]

(39) *Interpretation Economy*
[QR] is licensed in the new position iff it alters the interpretation of the string. [based on Miyagawa 2006:11, (17)]

Following this condition, QR must affect the interpretation of quantifiers: it must lead to a new interpretation that would not be available otherwise (change scope relations, repair a type mismatch, …). The basic idea of the Minimalist Program (cf. Chomsky 1995) is "to rid the theory of any element that does not have a natural and independent justification" (Miyagawa 2006:4). Operations are triggered to meet the requirement of 'interpretability at the interface'. On the Last Resort view of MP, optional operations such as QR are not expected to exist (cf. Surányi 2002; Miyagawa 2006, 2011). That is because optional operations in principle *need* not occur. According to Miyagawa (2011:15), however, Fox's Economy "is consistent with the 'last resort' tenet of MP in so far as if optional movement does not take place, such as [QR] […] for scope taking, a new meaning (inverse scope) would not be possible. Optional movement is therefore a 'last resort' effort on the part of the grammar to induce the otherwise unavailable meaning."

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[35] This is necessary since, as noted by Cecchetto (2004:354), "[i]f this were not assumed, the computational system would have 'look' ahead properties, because, by the time the [QP] evacuates its base position, the system should know that in later stages of the derivation there will be a trigger for QR that is not present at the start of the successive cyclic movement."

[36] The term *Interpretation Economy* is suggested in Miyagawa (2006). Fox (2000) also generalizes his Scope Economy condition to a condition that he calls *Output Economy*. Output Economy licenses operations like QR if they have an effect on outcome (cf. also Chomsky's (2000:109, 2001:34) *Interface Economy Condition*). I follow Miyagawa's (2006:11) reasoning that "[a]lthough Scope Economy is too restrictive and it needs to be expanded, […] the condition should continue to reference only matters of interpretation" and hence, not matters of pronunciation.

3.2.2 QR TARGETS vP: THE PIC AND FEATURE CHECKING

Following Chomsky (1981), many authors (e.g. Bruening 2001; Cecchetto 2004) adopt the view that construction-specific rules do not exist. In particular, QR – a displacement operation – must obey the same constraints that hold for other instances of (A') movement. For instance, it has often been argued that subjacency effects (i.e. island effects) arise with QR, just like with WH-movement is (May 1977; Longobardi 1991; Reinhart 1991; Simpson 2000).

Another such restriction is the Phase Impenetrability Condition (PIC) (cf. section 3.3 of chapter 2): movement operations must apply cyclically, phase by phase. It has been argued that QR, like other movement operations, is phase-bound (cf. Cecchetto 2004; Miyagawa 2006, 2011; Wurmbrand 2011a). The only way for QR to escape a phasal domain (the complement of the phase head) is to move out of the domain to the edge of the phase before it is completed. Movement to the edge is necessary for the QP to remain accessible. As v is a phase head, a QP is accessible for further movement only when it moves to the edge of the vP-phase.[37]

Many authors have also argued that QR, like other types of A'-movement, is a feature-driven operation (cf. Chomsky 2000:109; Sauerland 2000b; Bruening 2001; Tang 2001; Miyagawa 2006, 2011; Akahane 2008).[38] Movement operations in the Minimalist Program (MP, cf. Chomsky 1995) are viewed as strictly last resort. They are 'triggered' in that they occur in order to meet the requirement of interpretability at the interfaces. The triggers are formal (i.e. morphosyntactic) features; the moving element moves to the position of the formal feature in the structure. Sauerland (2000b), Bruening (2001), Tang (2001), Legate (2003), Miyagawa (2006, 2011), and Akahane (2008) propose that a formal feature of v triggers QR to the edge of vP.[39] This feature is often called [QU(antificational)], following Chomsky

[37] Cecchetto (2004), Miyagawa (2006, 2011), and Wurmbrand (2011a) have proposed to combine the PIC with Scope Economy (or, more general, Interpretation Economy) to limit the occurrence of long QR: each sub-link of successive-cyclic QR must have an interpretational motivation. If movement is semantically vacuous, it is in violation of Economy. For instance, the first step of QR, targeting the edge of vP, is motivated because the QP needs to target a node of type *t* (cf. the previous subsection). When the QP is in the edge of vP, it is accessible for further movement. This further movement is possible only if this operation crosses another quantificational element. That is, further movement must be sanctioned by Economy.

[38] Beghelli (1993, 1997) and Beghelli & Stowell (1994, 1997) have also argued that QR is driven by formal feature checking, but in a way different from the proposals outlined in this subsection. Different quantifier classes are taken to bear different syntactic features, which need to be checked in different quantifier-class specialized functional projections. See Bruening (2001) and Surányi (2002) for problems with this proposal.

[39] According to Akahane (2008), the QR-triggering feature can be assigned *only* to v (hence, the vP-edge is always the final landing site of QR). Others (e.g. Bruening 2001; Miyagawa 2006, 2011) argue that the relevant feature can be present on several heads in the clause.

(2000:109).[40] This formal feature attracts a QP under feature matching. v can only attract XPs of the right semantic type: it is a Probe looking for a quantificational Goal. If the VP contains a quantificational XP, and v appears with a [QU]-feature, the XP will be attracted to the vP-edge. For some (e.g. Chomsky 2000; Tang 2001), QU-features enter the derivation only if they have an effect on outcome (for instance, deriving a wide scope interpretation for an object QP). If the [QU]-feature is not present on v, the QP object remains in its base position. Others (e.g. Legate 2003; Akahane 2008) take [QU] to be assigned to v whenever VP contains an object quantificational expression. That is, QR to the edge of vP always takes place.[41]

Concluding, although implementations differ considerably, it should be clear that many authors have argued that QR must target the vP-periphery, either because of the PIC that requires that movement target the phasal edge before moving on further, or because of a feature on v that requires the QP to raise to the vP-area.

3.2.3 CONCLUSION

This subsection was meant to show that the idea that (a first step of) QR of an object QP must target the vP-area is widely present in the theoretical literature (although the motivations differ: semantically driven vs. feature-driven (or a combination of the two)).[42] The next subsection discusses empirical data that show that QR indeed targets the vP-periphery. In my multidominant, cyclic analysis of QR I will incorporate the proposal that QR always targets the edge of vP. To be precise, I

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[40] Some (Bruening 2001; Tang 2001; Legate 2003) take the QU-feature to be a reflex of the 'P(eriphery)-feature' (also known as 'OCC-feature' or 'EPP feature' in Chomsky 2000, 2001), which is optionally assigned to a phase head (e.g. v) and drives movement to the phase edge. Others (Chomsky 2000; Akahane 2008) claim that [QU] must be distinguished from the EPP-feature.

[41] Following recent MP proposals (Chomsky 2005, 2008), Miyagawa (2006, 2011) assumes that an element can always move freely to the edge of a phase, because phase heads carry Edge Features that can trigger Internal Merge.

[42] An alternative idea is presented in Lechner (2009, 2012), according to whom movement should not be described in terms of *Attract*, but rather in terms of *Survive*. Implementing the concept of push chains (cf. van Riemsdijk 1997; Moro 2007), he proposes that movement is a consequence of *repulsion*: a node is repelled from its local environment and pushed into a higher position in order to avoid a feature or type mismatch. Just like the other analyses discussed in the previous two subsections, Lechner (2009, 2012) takes an object quantifier to target the first propositional node (vP). However, his *Survive Principle* forces the object to move in small, incremental steps, targeting several intermediate VP- and vP-projections. This is because each time a new head, specifier, or adjunct is merged, it induces further (intermediate) movement of the object. This is not an option I will pursue here.

adopt the proposal that (i) QR must target a clause-denoting node (a closed proposition of type *t*), and (ii) this operation is subject to *Shortest Move* in (37):

(37) *Shortest Move*
An instance of QR is restricted to the closest XP that dominates QP (where XP ranges over clause-denoting maximal projections).
[cf. Fox 2000:63]

3.3 QR targets vP: empirical support

3.3.1 INTRODUCTION

In her (2003) LI squib, Legate collects empirical evidence for the phasehood of transitive, unaccusative, and passive vPs.[43] She reasons that evidence for phasehood can be obtained if intermediate landing sites of moved elements are detectable at the suspected phase edge. That is because the Phase Impenetrability Condition (cf. section 3.3 of chapter 2) demands that elements in the phasal complement that need to escape the phase move to the phase edge. Three of Legate's arguments concern the LF-interface properties of vP: the diagnostics are parasitic gaps, WH-reconstruction, and Quantifier Raising in ACD.[44] The first argument is based on insights by Nissenbaum (1998), the second one on Fox (2000).[45]

Although the first two diagnostics (parasitic gap licensing and WH-reconstruction) indicate that successive-cyclic WH-movement has an intermediate landing site in the vP-area, this conclusion need not necessarily carry over to the type of A'-movement

[43] The phrasal category of unaccusative and passive verb phrases is debated in the literature: are they VPs or vPs involving a (defective) v head? As noted by Legate (2003:506, fn.1), however, "[t]he question of the phasehood of these phrases is independent from the question of their categorical label".

[44] Legate (2003:511-513) also discusses a fourth argument, which concerns vP's PF-interface properties: nuclear stress in English.

[45] Den Dikken (2006b) argues that none of Legate's arguments for vP-phasehood are conclusive. Nevertheless, he stresses that his reply to Legate is not aimed "at establishing that vP is not a phase: [...] there are [...] good conceptual and empirical reasons for believing that vP exists and is phasal" (den Dikken 2006b:1) and that "we can arguably still derive syntactic evidence for vP's phasehood" (den Dikken 2006b:7). Den Dikken (2006b), referring to den Dikken (2006a:Ch.4, 2007), suggests to include small clauses (i.e. tenseless subject – predicate configurations) in the investigation of vP-phasehood. In den Dikken (2010), he even argues (on the basis of long WH-dependencies, resumptive prolepsis, and WH-scope marking in Hungarian) that successive-cyclic movement via Spec,CP does not exist; successive-cyclic A'-movement can take place only via vP-edges. The reader should thus be aware that Legate's (and therefore also Fox's and Nissenbaum's) argumentation is debated, but that the status of vP as a phase and the existence of vP-landing sites in successive-cyclic A'-movement is not.

discussed in this chapter, i.e. Quantifier Raising. Nevertheless, Fox (2000:165) concludes that the "intermediate landing site for A'-movement between the [surface position of the] subject and the [base position of the] object [i.e. the vP-edge – TT] […] is the landing site that I assumed […] for obligatory QR." That is, Fox equates the intermediate vP-adjoined landing site of WH-movement to the landing site of short obligatory QR (the latter being either a final landing site or an intermediate landing site of long QR, as discussed in section 3.2.1 of this chapter). Nevertheless, empirical evidence that QR does indeed target vP seems indispensable. This is discussed in the following subsection.

3.3.2 QR IN ANTECEDENT-CONTAINED DELETION

In the context of this chapter, the most relevant one of Legate's (2003) diagnostics is Quantifier Raising in Antecedent-Contained Deletion (ACD).[46] An example of ACD is given in (40). The sentence in (40) contains a direct object DP (*every boy*), to which a relative clause is attached. The VP inside the relative clause is elided.

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[46] The argumentation here disregards proposals that take ACD-resolving QR to be different from 'normal' QR (i.e. non-ACD-resolving QR such as scope QR), cf. for instance von Fintel & Iatridou (2003). Von Fintel and Iatridou (2003) list some properties of ACD-resolving QR that differ from those of 'normal' QR (see also Wilder 1997; Fox 1995a, 2000, 2002; Cechetto 2004). Most of these differences are handled by the analysis in Fox (1995a, 2000, 2002), showing that both types of QR can presumably be put on a par. See also Cecchetto (2004) for discussion in a phase-based framework.

Moreover, some of the differences have been contested in the literature. For instance, it is well known that ACD-resolving QR bleeds Condition C (cf. the discussion further on in this section). It has been claimed, though, that 'normal' QR differs from ACD-resolving QR in *not* bleeding Condition C (Fiengo & May 1994; Fox 1995a, 2000, 2002; Merchant 2000a; von Fintel & Iatridou 2003). According to the authors mentioned, there is a contrast between examples (i) and (ii): only (i), with ACD-resolving QR, is grammatical.

(i) Polly introduced him_i to everyone Erik_i wanted her to.
(ii) Polly introduced him_i to everyone Erik_i wanted to meet.

Kennedy (1997:686,fn.22), however, calls this judgment into question: "of 13 native speakers interviewed, only 1 judged (ii) unacceptable on the intended reading." Based on the judgments of Kennedy's informants, it would seem that both 'normal' and ACD-resolving QR bleed Condition C.

Given all this, I stick to the idea that ACD-resolving QR and non-ACD-resolving QR are one and the same operation.

(40) [cf. Fox 2002:64, (2)]

a. John likes every boy Mary does.

b. John [$_{VP}$ likes every boy Mary does ⟨likes t⟩].
(elided VP: ⟨likes t⟩; antecedent VP: [$_{VP}$ likes every boy Mary does ⟨likes t⟩])

ACD, first discussed in Bouton (1970), arises when an ellipsis site is contained inside the constituent that serves as its antecedent.[47] Ellipsis resolution in ACD configurations is problematic (as noted by e.g. Sag 1976; May 1997, 1985; Fiengo & May 1994): "[a]ny attempt to resolve the VP ellipsis by identity with an antecedent VP […] will result in infinite regress" (Merchant 2000b:145). The sentence would continue ad infinitum and would therefore be uninterpretable. If infinite regress is to be avoided, the object in a sentence like (40) cannot be interpreted in its base position: it needs to be interpreted in a VP-external position (cf. (41)). Therefore, it has been proposed that the appropriate interpretation becomes available if QR moves the phrase that contains the elided VP outside the antecedent VP.[48] As such, because of QR, there is an appropriate antecedent for verbal ellipsis, which does not contain the ellipsis site itself. Hence, QR resolves the infinite regress problem of ACD (cf. Sag 1976; May 1977, 1985; Fiengo & May 1994; Fox 1995a, 2000, 2002; Kennedy 1997; Bruening 2001; Hackl et al. 2012).[49]

(41) John [every boy Mary does ⟨*likes t*⟩]$_i$ [$_{VP}$ likes t_i]

One of the ACD-examples discussed by Legate (2003) is the one in (42):

(42) [Legate 2003:509, (4b)]
Some woman [$_{VP1}$ gave John [$_{DP}$ every message you did [$_{VP2}$ *e*]]].

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[47] As discussed below, a more precise formulation is: ACD arises when an ellipsis site at the surface seems to be contained inside the constituent that serves as its antecedent.

[48] The analysis that QR of the QP which hosts the ellipsis site resolves infinite regress goes back to Sag (1976) and May (1977). In fact, ACD was one of the initial motivations (cf. May 1977) to argue in favor of the existence of the operation QR.

[49] The analysis is often more complicated than is presented here. For example, Fox (2000, 2002) and Johnson (2011a) argue that it is not QR per se that obviates the Parallelism violation in ACD.

Incorporating insights from Fox & Nissenbaum (1999), these authors propose that QR allows for late merger of an adjunct, "thus circumventing the need to ever create a configuration in which the violation occurs" (Fox 2002:66). I abstract way from this here, as this is not crucial at this point. What is crucial is that QR always plays a vital role in ACD: in these more complex alternative proposals, too, QR is needed for ACD-resolution.

In this example, QR is required for ACD-resolution. The example in (42) is designed to ensure that QR targets the vP-edge. In one of the readings of (42) – the most salient one – the existential QP *some woman* outscopes the universal QP *every message*. Therefore, QR of the DP containing the universal QP must have targeted a position below the subject, a vP-adjoined position, as schematically represented in (43):[50]

(43) Some woman [$_{vP}$ [$_{DP}$ every message you did ⟨~~give John t~~⟩] [$_{vP}$ gave John t$_{DP}$]].

The idea that the (obligatory) step of QR needed for ACD resolution is short, targeting the vP-periphery, is widespread (cf. also e.g. Fox 1995a, 2000, 2002; Merchant 2000a, 2000b; Bruening 2001; Cecchetto 2004; Kiguchi & Thornton 2004).[51] Merchant (2000a) and Fox (1995, 2000) argue that the contrast between the sentence in (44) and those in (45) shows that ACD-resolving QR targets a position in the c-command domain of the subject.

(44) [Merchant 2000a:568, (6)]

I introduced him$_1$ to every guy Peter$_1$ wanted me to.

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[50] Den Dikken (2006b:3) rejects this proposal (in part) based on the following reasoning: "if Legate is right that in [(42)] QR targets a vP-adjoined position, and if, as is generally assumed, segments of multi-segment categories are not independently manipulable, then [(42)] must involve ellipsis of the root VP, not of vP, in order to ensure categorial identity of the ellipsis site and its antecedent. But the idea that the elliptical material in [(42)] is the root VP clashes with Chomsky's (2000) claims regarding the 'relative independence' of phases 'in terms of interface properties': non-phases (including VP) should not be allowed to undergo ellipsis." This critique can be countered on the basis of proposals in the literature showing (a) that there are crucial differences between phases and ellipsis (e.g. Aelbrecht 2009:3.2.4, contra Gengel 2007) and (b) that verbal ellipsis *can* target an intermediate vP projection/a segment of vP (e.g. Wilder 1997; Merchant 2000b; Johnson 2004). A piece of empirical evidence in favor of these latter proposals can be found in (i):

(i) [cf. Merchant 2000b:145, fn.1, (i)]

a. Abby quit because I did, but Ben didn't.

b. Abby [$_{VP1}$ [$_{VP2}$ quit] because I did ⟨~~quit~~⟩], but Ben didn't ⟨~~quit because I quit~~⟩.

As pointed out by Merchant (2000b:145, fn.1), in a sentence like this, "the first elided VP must take as its antecedent the lower VP segment (VP$_2$), while the second elided VP must be resolved by the higher VP segment (VP$_1$)."

[51] The alternative idea, i.e. QR in ACD adjoins to TP, is present in the literature as well. Although they assume that QR can target VP as an adjunction site in general, for Fiengo & May (1994), QR in ACD resolution must adjoin the QP outside of the VP entirely, i.e. ACD-resolving QR must target TP/S. Other authors taking QR in ACD to target the TP-domain are Agbayani (1996), and Kennedy (1997), for instance.

(45) [Merchant 2000a:568, fn.3, (i)]

a. * He_1 liked most (of the guys) I wanted $Peter_1$ to.
b. * She_2 read (us) every story $Beth_2$'s mom did.
c. * She_3 didn't give me a single book $Beth_3$ promised to.

It is well known that ACD-resolving QR obviates Condition C (cf. Fiengo & May 1994; Fox 1995a, 2000, 2002; Merchant 2000a, 2000b; Kiguchi & Thorton 2004), as shown in (44). If the indirect object pronoun *him* were to c-command the DP containing the ellipsis site, a Condition C violation would arise, as this DP contains the R-expression *Peter* (coindexed with *him*). If, however, ACD-resolving QR targets a position c-commanding the indirect object, coreference between *Peter* and *him* becomes possible. QR eliminates the illicit c-command relation holding between the pronoun *him* and the R-expression *Peter*.

The examples in (45) show that "the grammaticality of [(44)] does not arise from Principle C's being "turned off" in ACD or the like" (Merchant 2000a:568, fn.3). The examples in (45) show that the bleeding effect observed in (44) does not hold in sentences with coindexed subject pronouns. Therefore, the landing site of QR must be in the c-command domain of the subject, as coreference between the QRd R-expression and the subject pronoun is not allowed. Based on examples like these, Fox (1995b, 2000, 2002) points out that a TP-adjunction analysis is problematic: if QR targets TP, sentences like (45) should allow the interpretation in which the R-expression is coreferential with the pronoun. As QR would raise the R-expression out of the pronoun's c-command domain, Condition C should no longer rule out coreference, contrary to fact.[52] Therefore, Fox argues that, instead of TP-adjunction, vP-adjunction must be available to QR. In his (2000a) *LI* squib, Merchant leaves open the option that the ACD-resolving QR either targets TP or a position below the subject. Merchant (2000a:568, fn.3) suggests that in the former case, the QRed XP can be in the c-command domain of the subject via a segment theory of m-command as in May (1985) (see footnote 4). In his (2000b) *Syntax* article, on the other hand, Merchant argues on the basis of NPI licensing in ACD that ACD-resolving QR must target a low (VP-adjoined) position.[53]

[52] Legate (2003) also takes NPI-licensing in ACD to constitute an argument in favor of a QR-landing site at the vP-edge. Both Merchant's and Legate's argumentation assumes NPIs to be licensed solely at LF, which is not in line with the assumptions concerning NPIs adopted in chapter 3 of this dissertation. I do not discuss the NPI-argument here, given that there are sufficient other pieces of evidence (based on quantifier scope and binding theory) that ACD-resolving QR targets vP.

[53] It is often proposed that the vP-landing site of QR for ACD-resolution is the same node as the one targeted by obligatory short QR (cf. Fox 2000; Cecchetto 2004; Hackl et al. 2012).

As already mentioned, Fox (1995a, 2000, 2002) also adheres to the analysis that ACD-resolving QR targets vP. This follows from his proposal that Economy considerations determine that QR must target the closest available XP that yields an interpretable structure, where XP is a clause-denoting maximal projection (cf. section 3.2.1 of this chapter). In the case of ACD, this is the most local clausal XP above the elided VP. Fox argues that QR cannot be licensed by the need to satisfy Parallelism (see also footnote 15): QR is only licensed on the basis of interpretational considerations. As the example in (46)a shows, ACD is available where there is no scope ambiguity. According to Fox (2000:22, fn.2), this "virtually forces the assumption that short QR is always motivated on independent grounds" (because Parallelism-inducing QR does not exist). That is, he considers ACD-resolving QR to be an instance of the obligatory short QR discussed in section 3.2.1. ACD resolution is just a by-product of obligatory short QR targeting vP. As such, ACD shows that there is always obligatory QR (to a vP-adjoined position).[54] This assumption is reinforced by the observation that ACD is impossible when the QP is replaced by an R-expression that can be interpreted in situ (cf. (46)b).

(46) [based on Fox 2000:22, fn.4]

a. John [$_{VP1}$ stood near [$_{DP}$ every boy that Mary did [$_{VP2}$ *e*]]].

b. * John [$_{VP1}$ stood near [$_{DP}$ Bill, who Mary didn't [$_{VP2}$ *e*]]].

In an example like (46)a, further movement (e.g. adjunction to TP) is not needed, hence not allowed, because it would be semantically vacuous (and would thus violate Interpretation Economy). Adjunction of the quantificational DP to vP is sufficient for obtaining the intended interpretation.

Fox's idea differs from other proposals in the literature that take ACD-resolution to be an independent motivation for QR, that is, independent of effects like scope inversion or type-mismatch-resolution (cf. Bruening 2001; Cecchetto 2004; Hackl et al. 2012).[55] According to Hackl et al. (2012), ACD-resolving QR occurs even when the DP hosting the ellipsis site is definite, cf. (47). They present sentences like (47) as evidence that ACD-resolving QR exists, independent of the semantic properties of the object DP: "if there is an ACD site, QR occurs irrespective of whether the DP is quantificational" (Hackl et al. 2012:16-17).

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[54] The same idea is present in Bruening (2001:254): "The fact that all quantifiers within VP must move to vP [...] makes satisfaction of the conditions on the interpreation of ACD a trivial matter."

[55] See also Vanden Wyngaerd & Zwart (1991) on ACD in non-restrictive relative clauses.

(47) [cf. Hackl. et al 2012:11, (18a)]

a. John read the book that Mary did.

b. John [$_{VP1}$ read [$_{DP}$ the book that Mary did [$_{VP2}$ *e*]]].

As indicated by Hackl et al.'s (2012) real-time sentence processing research, however, sentences like (47) do seem to differ from 'standard' ACD-cases involving QPs, like (40). Condider (48):

(48) [cf. Hackl. et al 2012:29, (29)]

The doctor was reluctant to treat …

a. the patient that the recently hired nurse admitted

b. the patient that the recently hired nurse did

c. every patient that the recently hired nurse admitted

d. every patient that the recently hired nurse did

… after looking over the test results.

As noted by Hackl et al. (2012:1), "the integration of a quantifier in object position and the resolution of antecedent-contained deletion (ACD) […] are linked". Their real-time sentence processing research shows that resolution of ACD is facilitated if the DP hosting the ellipsis site is quantificational but not if it is definite. That is, ACD resolution is facilitated in (48)d but not in (48)b. According to Wurmbrand (2011a) and Hackl et al. (2012), this shows that an independent instance of local QR is available in (48)c/d, for quantifier integration, which is independent of ACD-resolution.

Concluding, irrespective of whether or not non-quantificational DPs license ACD (cf. Fox's (2000) vs. Hackl et al.'s (2012) data), the data from ACD confirm that an independent obligatory short instance of QR, targeting vP, exists.

3.3.3 CONCLUSION

This subsection discussed empirical data showing that (a first step of) QR targets the vP-area. The proposal that QR always has a landing site in the vP-periphery seems well supported. Therefore, I incorporate this idea into the multidominant, cyclic analysis of QR presented in the next section.

3.4 QR and verbal ellipsis: Sample derivations

In this section, I show how the multidominant, cyclic framework presented in chapter 2 and implemented in chapter 3 also straightforwardly captures the QR data presented in the previous sections of this chapter. I first present a sample derivation of a non-elliptical sentence containing both a QP object and a modal (subsection 3.4.1). Then, I show how the framework allows QR to escape a verbal ellipsis site, crossing a modal in T (subsection 3.4.2).

3.4.1 QR ACROSS A MODAL IN A NON-ELLIPTICAL SENTENCE

Let us consider the derivation of the sentence in (49), a shortened version of one of the sentences discussed in section 2.4 of this chapter. The sentence in (49) contains the modal *can* and a universal QP in object position. It was shown in section 2.4 that this sentence has two readings, one in which the modal outscopes the object universal QP, and one in which the QP outscopes the modal.

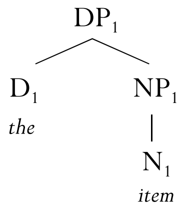
(49) You can order every item (on the list). (*can* > ∀), (∀ > *can*)

As discussed in chapter 2 (cf. also sections 3 and 4 of chapter 3), a syntactic derivation starts out with a collection of terminals in a numeration N. The numeration in (50) contains the necessary grammatical formatives (terminals).

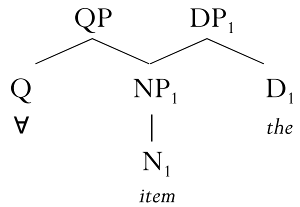
(50) $N = \{ D_1, N_1, Q, V, D_2, v, T, C \}$

The primitive, recursive structure building operation Merge constructs phrase markers (in a bottom-up fashion) by taking two (possibly complex) syntactic objects and combining them into a new complex syntactic object. Merge applies until one single phrase marker is constructed from the terminals in the Numeration. Merge is External, Internal or Parallel Merge, depending on the objects it combines. Internal and Parallel Merge give rise to structures in which a single node has two mothers, i.e. to multidominant phrase markers. Recursively applying the primitive structure building operation Merge will produce a syntactic representation for the sentence in (49).

The first applications of Merge form the object QP. First, a definite determiner merges with the object NP_1. The resulting DP_1 is a definite description that will function as variable bound by the quantifier Q.

(51)


Recall from section 3.1 that Johnson (2010a, 2011a) argues that both the definite determiner D_1 and an operator (quantifier) Q combine with an NP_1 (both syntactically and semantically).[56] This is a case of Parallel Merge: a syntactic object (NP_1) that is a subpart of one rooted object (DP_1) is remerged with another rooted object (Q). The result is a structure in which a single node (NP_1) has two mothers (DP_1 and QP). As such, the phrase marker transits through a representation in which the tree has more than one root.

(52)


What if Merge of Q and NP_1 is held off to a later stage in the derivation? Recall that when the first phase (vP) is finished, the phasal complement (VP) is sent off to the interfaces. As will be discussed shortly, DP_1 is part of the phasal complement. Hence, Q needs to merge with NP_1 (inside DP_1, inside the phasal complement) before the phasal complement is spelled out, that is, before the phase vP is completed. Otherwise, remerge of NP_1 with Q would violate the PIC in (53):[57]

(53) *The Phase-Impenetrability Condition (PIC)*

In a phase α with a head H, the domain of H is not accessible to operations outside α, only H and its edge are accessible to such operations.

[Chomsky 2000:108]

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[56] Similar ideas regarding the ordering of the first applications of Merge are present in Johnson (2008).

[57] Jeroen van Craenenbroeck (p.c.) points out that this kind of merger (i.e. Merge between Q and NP_1, the former outside, the latter inside the phasal complement) could be made possible by slightly adjusting the PIC in (53) to, for instance, "the domain of H is not accessible to operations c-commanding α". I adhere to Chomsky's original definition (53) here.

As long as the merger of Q and NP happens before Spell-Out of VP, merging NP and Q does not violate the PIC. I follow Johnson's (2008) derivation, in which merger of NP and Q happens immediately. The reader should keep in mind, though, that this Merge operation could be postponed until just before completion of the vP phase. It should be pointed out that I do not want to claim that merger of Q and NP1 is *forced* at this point in the derivation, as this would involve lookahead. As also discussed in section 3.1 of chapter 3, Merge is free. Merger of Q and NP_1 could or could not happen at this point. If it does not, however, because of the PIC, Q and NP will not be able to merge after completion of the vP phase. Given that the denotation associated with quantifiers requires the operator (Q) to combine with its restriction (NP), the derivation will crash at the LF interface level if Q and NP_1 did not merge.

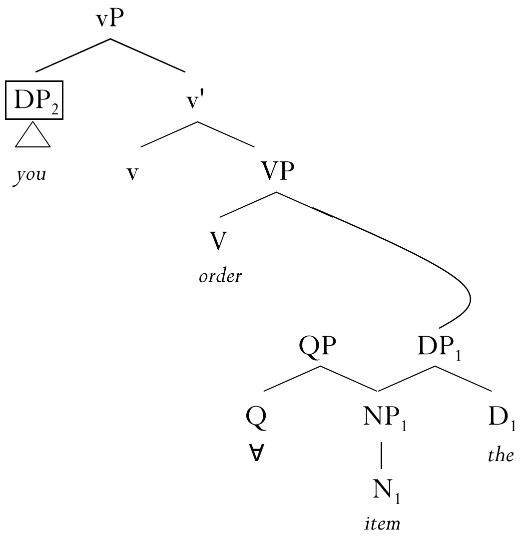
After (52) has been formed, DP_1 is selected by the verb as its complement.[58] Next, v merges with the VP and the subject DP is merged to form Spec,vP. Complex (i.e. branching) left branches (specifiers and adjuncts) need to be spelled out (and hence linearized) before merging to the phrase marker under construction (following Uriagereka 1999, cf. section 3.3.1 of chapter 2). Therefore, the subject undergoes Spell-Out, after which it merges with vP.[59,60] The result of all this is given in (54):

[58] Note that the verb selecting a QP as its object is problematic for semantic reasons, as discussed in section 3.2.1 of this chapter.

[59] I take pronouns to be DPs here (following Déchaine & Wiltschko (2002), who take English first- and second-person pronouns to be DPs), which might be contested. The issue of the internal structure of pronouns is orthogonal to my purposes. See for instance Déchaine & Wiltschko (2002) and Cowper & Hall (2009).

[60] As already mentioned in section 3.3.1 of chapter 2 and section 3.2 of chapter 3, I abstract away from the questions of whether (i) the two phrase markers (the subject and the vP) are assembled simultaneously in separate derivational spaces or sequentially in the same derivational space and (ii) whether (and if so, how) the Spelled-Out subject is renumerated.

(54)



Recall that an object QP always targets the edge of vP (cf. sections 3.2 and 3.3 of this chapter).[61] To be precise, (i) a QP must target a clause-denoting node (a closed proposition of type *t*), and (ii) this operation is subject to *Shortest Move*:

(37) *Shortest Move*

An instance of QR is restricted to the closest XP that dominates QP (where XP ranges over clause-denoting maximal projections).

[cf. Fox 2000:63]

The first node of type *t* dominating the object QP is vP. The condition in (37) then requires the object QP to adjoin to vP.[62,63] As QP will merge as a complex left

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[61] Although this does not really have an impact on the analysis of non-elliptical sentences with QR in English, it does on their elliptical counterpart, as discussed in the next section.

Moreover, I take the stopover in vP to be motivated on independent grounds (cf. sections 3.2 and 3.3 of this chapter). Therefore, I incorporate this step in the analysis of non-elliptical QR sentences as well.

[62] This differs from Johnson's (2008, 2010a, 2011a) analysis, in which QP does not adjoin to VP/vP, but to TP. See section 3.1 of this chapter and the discussion in section 4.

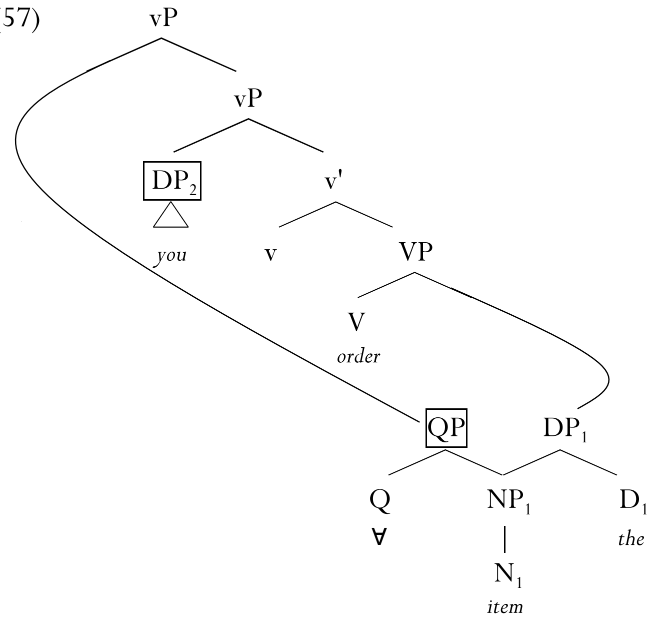
[63] The reader might have noticed that obligatory QR here is somewhat different from the cases discussed in section 3.2.1. In the structure in (57), QP is not a sister of the verb; obligatory QR is therefore not 'forced' by type considerations. Note, though, that the QP in (57) needs to be merged in the clausal spine. The QP needs to target a clause-denoting node (corresponding to its nuclear scope) and in light of Fox's *Shortest Move* (here actually *Fastest Merge*) this needs to happen as soon as possible. That is, the QP needs to merge with the first constituent of the appropriate semantic type, which is vP. Note also that for these reasons, this adjunction to vP is allowed by *Interpretation Economy* (cf. section 3.2.1).

branch in the clausal spine, it needs to be spelled out (and hence linearized) before merging with vP (following Uriagereka 1999). The QP undergoes Spell-Out and the linearization scheme applies. The asymmetric c-command relations in the A in (55) correspond to ordered pairs, the interpretation of which (in terms of precedence of subsequence) is left open (cf. section 3.2 of chapter 2). These ordered pairs are disambiguated by language-specific requirements. A maximally small disambiguated subset is given in (56)a and the linearization d(A) in (56)b.

(55) $A = \{ \langle Q, NP_1 \rangle, \langle Q, N_1 \rangle \}$

(56) a. $A' = \{ Q < N_1 \}$
b. $d(A) = \{ Q < N_1 \}$

Then, QP merges with vP, finishing the vP phase, as shown in (57):

(57)


As vP is a phase, the PIC requires that the domain of the phase head v is spelled out, i.e. transferred to PF (cf. chapter 2, section 3.3.1). Spell-Out targets the VP-complement of the phase head v, that is, all the material dominated by VP.[64] The

[64] I take NP_1 to be spelled out as part of the phasal domain, as it is dominated by DP_1 and therefore by the phasal complement VP. It needs to be pointed out, however, that, by virtue of being (*continued on the next page*)

phasal complement targeted by Spell-Out constitutes a linearization domain and forces the linearization scheme to apply. The linearization algorithm will therefore produce ordering statements for the VP. The ordered pairs corresponding to the asymmetric c-command relations in the A in (58) need to be disambiguated. A subset has to be selected, which meets language particular requirements and which will result in a total linearization (i.e. one that puts all of the terminals in a relative ordering with respect to each other). In this case, the heads V and D_1 will be linearized to the left of their complement. After this, a linearization d(A) is produced that meets Kayne's (1994) well-formedness conditions. The maximally small subset is given in (59)a, and the linearization in (59)b.

(58) $A = \{ \langle V, D_1 \rangle, \langle V, NP_1 \rangle, \langle V, N_1 \rangle, \langle D_1, N_1 \rangle \}$

(59) a. $A' = \{ V < D_1, V < N_1, D_1 < N_1 \}$
b. $d(A) = \{ V < D_1, V < N_1, D_1 < N_1 \}$

After Spell-Out and linearization of the complement of the phase head, the PF-branch contains three spelled-out phrases and their linearizations: the phasal domain VP and two complex left branches, the subject DP_2 and QP. These relevant d(A)s are listed in (60): [65]

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dominated not only by DP_1, but also by QP, NP_1 is part of the phase edge as well. Fox & Pesetsky (2003:4) claim that "[a] phrase dominates a moved constituent only if it dominates its most recently merged position". That is, according to Fox & Pesetsky (2003, 2004a), DP_1 and VP do not dominate NP_1 and hence, NP_1 cannot be spelled out as part of the phasal domain VP. NP_1 will be spelled out in its remerged position.

Note though, that even if NP_1 is spelled out in its remerged position, N_1 will need to be linearized to the right of D_1, i.e. $\{D_1 < N_1\}$, as English-specific requirements demand heads to precede their complements. The reverse linearization statement $\{N_1 < D_1\}$, will result in an ungrammatical output in English. D_1 has already been linearized with respect to V_1 earlier in the derivation $\{V < D_1\}$, though, as both are (only) part of the phasal domain VP. Given that linearization statements cannot be altered later on, N_1 will be spelled out to the right of both V_1 and D_1. Concluding, because of the fact that remerge only targets NP_1, not D_1 (Johnson 2010a, 2011a) and earlier linearization statements cannot be altered, the resulting linearization will always be one in which the object QP is realized in its base position, the complement of the verb. Given all this, in what follows, I simply take NP_1 to be spelled out and linearized as part of the phasal domain VP.

[65] To be precise, recall (cf. chapter 3) that the d(A) of DP_2 in (60)c is actually not the singleton $\{D_2\}$, but an empty set { }, as d(A) is a collection of ordering statements and 'D_2' is not an ordering statement. This will not pose problems for the linearization of D_2, as it will be linearized once again when the domain of the CP-phase is spelled out and linearized.

(60) a. $d(A)_{QP}$ = { Q < N_1 }
b. $d(A)_{VP}$ = { V < D_1, V < N_1, D_1 < N_1 }
c. $d(A)_{DP_2}$ = { D_2 }

This is the point in the derivation where the quantificational determiner *every* is created. It was discussed at length in chapter 3 that the morphological process of Fusion Under Adjacency can combine two terminals into one, realized by one lexical item. Here, I repeat Johnson's (2011a:23) Adjacency condition on Fusion and his specific definition of 'Adjacency', adopted here (adding (63)).

(61) *The Adjacency condition on Fusion*
X and Y can fuse only if the linearization algorithm assigns them adjacent positions.

(62) *Adjacency*
Two terminal items α and β are adjacent if the linearization algorithm puts nothing in between them. [cf. Johnson 2011a:25, fn.22]

(63) $\neg\exists x.(\alpha < x \ \& \ x < \beta)$ (and vice versa)

The linearizations in (60) put nothing in between Q and D_1: there is no element that precedes D_1 and follows Q (or vice versa). Therefore, Q and D_1 are adjacent at this point in the derivation.[66] Hence, the terminals Q and D_1 can fuse: they can be brought together under one terminal. Once Q and D_1 have fused, the terminal onto which Q and D_1 are jointly mapped will occupy the positions assigned to Q and D_1 in the linearizations in (60). The result of Fusion applying to the terminals Q and D_1 in (60), repeated here, is given in (64). The joint mapping of Q and D_1 (represented as Q = D_1) will ultimately be spelled out as the quantificational determiner *every*.[67]

[66] It might seem strange to talk about 'string adjacency' when at least one of the elements (Q) is invisible (i.e. it cannot get a lexical realization on its own). However, Richards (2010) argues that it is crucial that nodes dominating phonologically null lexical items are linearized. Moreover, the organization of the PF-branch of the grammar in Distributed Morphology (DM) might play an important role: does Vocabulary Insertion happen prior to or at Linearization (cf. Embick & Noyer 2001; Fuß 2005; Kandybowicz 2007) or does Vocabulary Insertion take place after Linearization (cf. Parrott 2006; Richards 2010). In the latter proposals, Linearization orders terminal nodes into a particular sequence, after which the nodes are assigned a phonological exponent. The precise ordering of operations at PF is not the primary concern of this dissertation, however.

[67] As I mentioned in section 3 of chapter 3, for Kayne's (1994) well-formedness conditions on linearizations it is crucial that, after Fusion, Q and D_1 are no longer considered 'distinct' terminals. Otherwise, the d(A) in (64) would violate Totality as neither Q < D_1 nor D_1 < Q. (*continued on the next page*)

(64) a. $d(A)_{QP} = \{ Q = D_1 < N_1 \}$

b.

$$d(A)_{vP} = \left\{ \begin{array}{c} V < Q = D_1 \\ V < N_1 \\ Q = D_1 < N_1 \end{array} \right\}$$

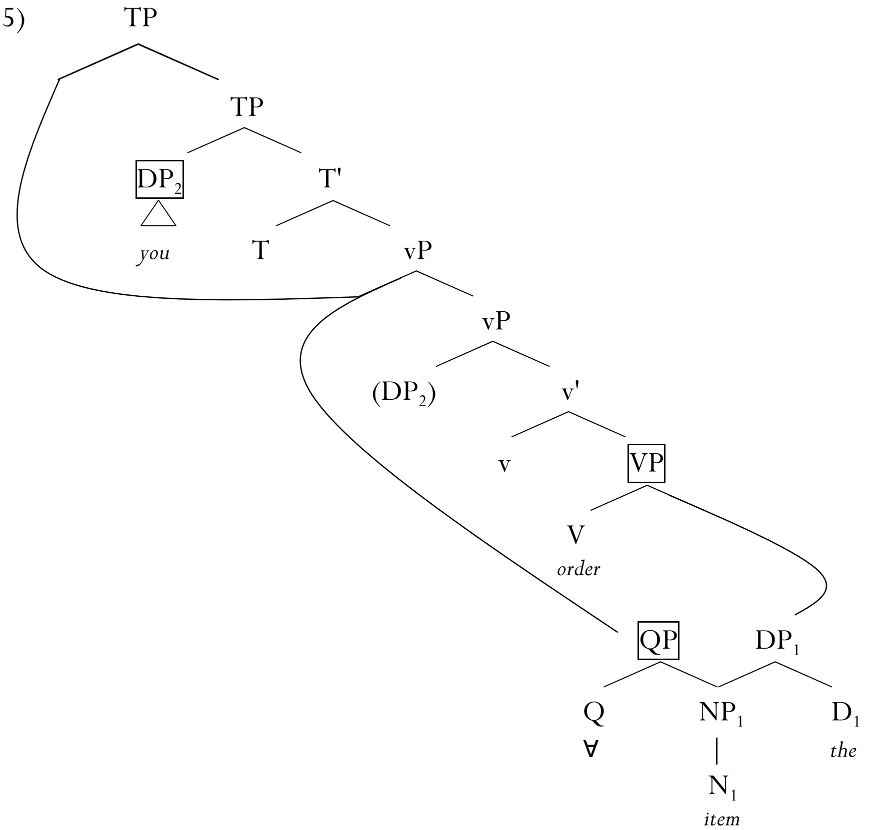
c. $d(A)_{DP_2} = \{ D_2 \}$

Next, T is merged with vP. I take modals to be base-generated in T (cf. section 3 in chapter 3 and section 2 in chapter 4), so this is the merge position of the existential modal *can*. Then, the subject DP_2 is remerged to become the specifier of TP.[68] If we want to derive the inverse scope reading of the sentence in (49), where the object QP outscopes the modal, QP needs to be remerged into a position c-commanding the modal. The propositional node TP is an appropriate landing site for QR. Moreover, adjunction of QP to TP is allowed by Fox's *Scope Economy* or, more generally, *Interpretation Economy* (cf. sections 2.1 and 3.2.1 of this chapter), as this operation is not semantically vacuous. Adjunction of QP to TP results in a reversal of the scope relation between the universal object QP and the existential modal. Note that the (re)merged left branch had already been spelled out earlier in the derivation, so spelling out and linearizing QP before merger with TP is not necessary.

That is, Q and D_1 are looked at as one terminal by the well-formedness conditions. Therefore, I chose the notation $Q = D_1$, to indicate that Q and D are to be considered one position from the point of view of (the well-formedness conditions on) linearization.

[68] As mentioned in section 3 of chapter 3, I gloss over the issue of whether or not movement of the subject to Spec,TP for EPP reasons takes place in narrow syntax or at PF, as this is not crucial for my purposes.

(65)



Then, the phase head C is merged and after completion of the CP phase, the phasal complement TP is transferred to PF. The phasal domain undergoes Spell-Out and the linearization algorithm applies. The asymmetric c-command relations are given in the A in (66). Note that the linearization scheme applies to both both the QP in the TP-area and in the vP-area.[69]

[69] Here, I ignore the ordering statements regarding the subject DP_2 in Spec,vP. The subject DP_2 should actually get linearized twice, once in Spec,TP and once in Spec,vP. Because of Tolerance, the ordering statements referring to the subject DP_2 in Spec,vP will eventually be jettisoned as English-particular requirements choose to linearize subjects in Spec,TP. For a more detailed picture of the linearization of the subject, see section 3 of chapter 3.

(66)

$$
A = \left\{
\begin{array}{llll}
\langle QP, DP_2\rangle & \langle DP_2, T\rangle & \langle T, QP\rangle & \langle v, V\rangle \\
\langle QP, D_2\rangle & \langle DP_2, vP\rangle & \langle T, Q\rangle & \langle v, DP_1\rangle \\
\langle QP, T'\rangle & \langle DP_2, QP\rangle & \langle T, NP_1\rangle & \langle v, D_1\rangle \\
\langle QP, T\rangle & \langle DP_2, Q\rangle & \langle T, N_1\rangle & \langle v, NP_1\rangle \\
\langle QP, vP\rangle & \langle DP_2, NP_1\rangle & \langle T, v'\rangle & \langle v, N_1\rangle \\
\langle QP, QP\rangle & \langle DP_2, N_1\rangle & \langle T, v\rangle & \\
\langle QP, Q\rangle & \langle DP_2, v'\rangle & \langle T, VP\rangle & \\
\langle QP, NP_1\rangle & \langle DP_2, v\rangle & \langle T, V\rangle & \\
\langle QP, N_1\rangle & \langle DP_2, VP\rangle & \langle T, DP_1\rangle & \\
\langle QP, v'\rangle & \langle DP_2, V\rangle & \langle T, D_1\rangle & \\
\langle QP, v\rangle & \langle DP_2, DP_1\rangle & \langle T, NP_1\rangle & \\
\langle QP, VP\rangle & \langle DP_2, D_1\rangle & \langle T, N_1\rangle & \\
\langle QP, V\rangle & \langle DP_2, NP_1\rangle & & \\
\langle QP, DP_1\rangle & \langle DP_2, N_1\rangle & & \\
\langle QP, D_1\rangle & & & \\
\langle QP, NP_1\rangle & \langle TP, Q\rangle & \langle T', D_2\rangle & \\
\langle QP, N_1\rangle & \langle TP, NP_1\rangle & & \\
 & \langle TP, N_1\rangle & &
\end{array}
\right\}
$$

The ordered pairs corresponding to the asymmetric c-command relations in the A in (66) need to be disambiguated. A subset of the ordered pairs needs to be selected that has to satisfy language-particular requirements. Heads have to precede their complement. Specifiers have to precede the material they asymmetrically c-command. The disambiguated subset has to result in a total linearization, i.e. one that puts all the terminals of the structure in a relative linear order with respect to each other.[70] The question is what happens to the remerged QP adjoined to TP. Does it get linearized following or preceding DP_2, T, v, etc.? Following Johnson's (2007) proposal, phrases are pushed to the left of the material they asymmetrically c-command in English. That would mean that the QP adjoined to TP has to precede the material in TP it asymmetrically c-commands. Let us see what would happen in

[70] That is, all terminals except for C, which will be linearized later on as it is not part of the phasal domain.

that case.[71] The (maximally small) disambiguated subset is given in (67). The resulting linearization is (68).

(67)

$$A' = \left\{ \begin{array}{ll} DP_2 < T & v < V \\ DP_2 < vP & v < DP_1 \\ & \\ T < vP' & QP < TP' \\ & QP < DP_2 \end{array} \right\}$$

(68)

$$d(A) = \left\{ \begin{array}{lllll} D_2 < T & T < v & v < V & Q < D_2 & N_1 < D_2 \\ D_2 < v & T < V & v < D_1 & Q < T & N_1 < T \\ D_2 < V & T < D_1 & v < N_1 & Q < v & N_1 < v \\ D_2 < D_1 & T < N_1 & & Q < V & N_1 < V \\ D_2 < N_1 & & & Q < D_1 & N_1 < D_1 \\ & & & Q < N_1 & N_1 < N_1 \end{array} \right\}$$

Note that the linearization in (68) contains several problematic statements. The statement $N_1 < N_1$, for instance, is a violation of Reflexivity. Moreover, the d(A) in (68) contains antisymmetric statements such as $N_1 < T$ and $T < N_1$ or $N_1 < D_2$ and $D_2 < N_1$. Furthermore, orderings such as $N_1 < V$ and $Q < V$ clash with the linearization statements that were introduced earlier in the derivation. That is, they are inconsistent with the orderings that were calculated before QP was adjoined to TP. Recall that the linearizations established for linearization domains earlier in the derivation cannot be changed later on. Linearization statements that are introduced later in the derivation have to be both total and consistent with the earlier statements.

Johnson (2007) proposed that d(A) is tolerant, just as A is: inconsistent and conflicting pairs can be discarded. As such, the reflexive statements can be deleted

[71] It seems to me, though, that adjuncts in the periphery of vP, TP, … etc. can be linearized to the right as well. For instance, in *I spoke to my mother yesterday*, the adverb *yesterday* is linearized following all vP- and TP-internal material. Following the standard idea that an adverb like this is adjoined to, for instance, vP, the adjunct needs to be linearizeable to the right (presumably, this is an English-specific requirement). If this is the case, linearization of the QP to the right of T, v, etc. is consistent with the linearization statements collected earlier. I choose to pursue the alternative situation where QP needs to be linearized as preceding TP-internal material, however, in order to show that this is compatible with my assumptions as well.

and the antisymmetric statements can be disposed of. Likewise, the orderings conflicting with linearization statements collected earlier can be deleted. Moreover, certain statements in (68) need to obey Transitivity when combining with statements collected earlier (cf. those in (64)). Relevant examples are given in (69). These statements in (69) are, however, contradicted by other statements in (68), namely Q < T and Q < v. As the statements in (64), putting Q = D_1 to the left of V, were collected earlier in the derivation and these cannot be altered, the two statements in (68) under discussion need to be discarded.

(69) TRANSITIVITY

a. T < V (68) + V < Q = D_1 (64) → T < Q = D_1

b. v < V (68) + V < Q = D_1 (64) → v < Q = D_1

Finally, note also that the statement Q < D_2 needs to be discarded, as it was established earlier that Q = D_1: D_2 precedes not only D_1, but also e.g. V, which was linearized as preceding D_1 (=Q).

The remaining statements are those in (70), which will be added to the orderings collected earlier (i.e. the ones in (64)).

(70)

$$d(A) = \left\{ \begin{array}{lll} D_2 < T & T < v & v < V \\ D_2 < v & T < V & v < D_1 \\ D_2 < V & T < D_1 & v < N_1 \\ D_2 < D_1 & T < N_1 & \\ D_2 < N_1 & & \end{array} \right\}$$

Note that, in the d(A) in (70), not all terminals seem to be ordered with respect to each other (because of Tolerance in d(A)). For instance, there is no statement T < Q (or vice versa). Nevertheless, T and Q are ordered with respect to each other by virtue of Fusion Under Adjacency between Q and D_1 earlier in the derivation: T < D_1 and Q = D_1, hence T < Q= D_1. The result of adding the ordering statements in (70) to the ones in (64) is a total, consistent ordering, which will eventually be realized as *You can choose every item.*

In this section I have developed an analysis for QR of an object QP across a modal in English. I incorporated Johnson's (2010a, 2011a) remerge + Fusion proposal for QR into the cyclic Spell-Out framework I introduced in chapters 2 and 3. The analysis has the following key components: decomposition of the quantified phrase, remerge (multidominance), cyclic Spell-Out and linearization, and Fusion under Adjacency. As proposed by Johnson (2010a, 2011a), the remerge + Fusion analysis ensures that the two components of an English quantificational determiner, an operator Q and a determiner, can fuse together. Moreover, the cyclicity of Spell-Out and linearization and the requirement of Order Preservation make sure that the object QP is realized in its base position, although it can be interpreted in its remerge position (e.g. outscoping a modal such as *can*). This is because it is only the NP-part of the QP that is remerged; the determiner always remains inside the phasal domain in the complement of V.

The next section focuses on the interaction between QR (across a modal) and verbal ellipsis in English. I argue that combining the analysis of QR developed in this section with the concept of derivational ellipsis (cf. section 4 of chapter 2 and section 4 of chapter 3) straightforwardly captures the fact that a QP can escape an ellipsis site, despite its being the result of Fusion Under Adjacency.

3.4.2 QR ACROSS A MODAL IN VERBAL ELLIPSIS

Relevant examples of QR of an object QP across a modal escaping a verbal ellipsis site were discussed in section 2.4 of this chapter and are repeated here:

(71)
a. You can order every item on the list and John can too.
b. Customers asked me if they could order every item on the list and I told them they could.
c. Can you order every item on the list? Of course you can.

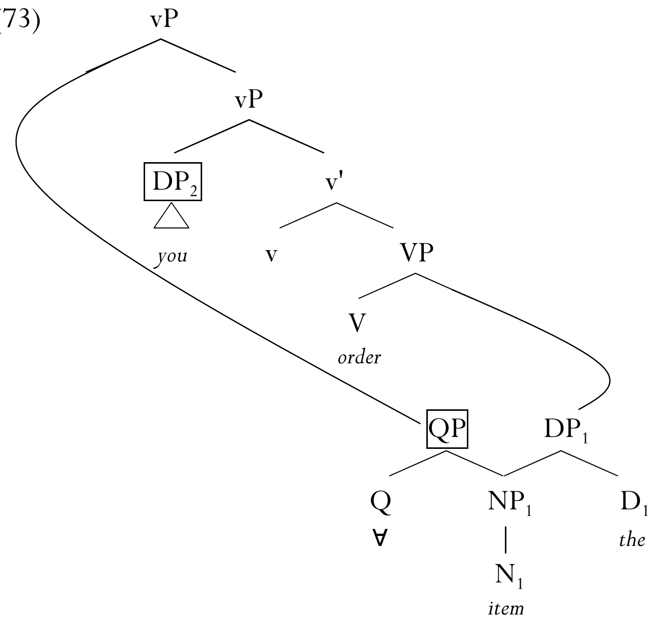
The antecedents in the examples in (71) are sentences with the modal *can/could* and a universal object QP *every item (on the list)*. The modal *can/could* is the licensor of verbal ellipsis in the elliptical clause. QR of the QP to outscope the modal, escaping the ellipsis site, is possible: it was discussed in section 2.4 that the sentences in (71) (at least (71)b and (71)c) are ambiguous.

Let us consider the elliptical clause in (71)c. For this example, the syntactic derivation starts out with the collection of terminals in a numeration N given in (72):

(72) N = { D_1, N_1, Q, V, D_2, v, T , C }

The first applications of Merge are identical to those discussed in section 3.4.1: Merge creates an object DP_1, the NP_1-part of which undergoes Parallel Merge with an operator Q to form a QP. After this, V merges with the DP_1, v merges with VP, and the subject DP_2 is merged as Spec,vP. The subject DP_2 is spelled out before merger as the vP-specifier. Then, crucially, QP is merged in the vP-periphery:

(73)



As discussed before, an object QP always targets the edge of vP (sections 3.2 and 3.3 of this chapter). The object QP targets a clause-denoting node, and this operation is subject to *Shortest Move* in (37):

(37) *Shortest Move*
An instance of QR is restricted to the closest XP that dominates QP (where XP ranges over clause-denoting maximal projections).
[cf. Fox 2000:63]

The first node of type *t* dominating the object QP is vP. *Shortest Move* in (37) thus requires the object QP to adjoin to vP. As QP merges as a complex left branch in the clausal spine, it needs to be spelled out (and hence linearized) before merging with vP (following Uriagereka 1999). The adjunct QP undergoes Spell-Out and the linearization scheme applies. The ordered pairs corresponding to the asymmetric c-command relations in the A in (74) are disambiguated by language-specific requirements. A maximally small disambiguated subset is given in (75)a, and the linearization in (75)b.

(74) A = { ⟨Q, NP_1⟩, ⟨Q, N_1⟩ }

(75) a. A' = { Q < N_1 }
b. d(A) = { Q < N_1 }

Upon completion of the vP-phase, the complement of the phase head v (VP) is shipped off to PF. Spell-Out and linearization target all the material dominated by VP (that is, V, $D(P)_1$ and $N(P)_1$). The resulting linearization is the d(A) in (76):

(76) d(A) = { V < D_1, V < N_1, D_1 < N_1 }

At this point, the PF-branch contains the linearizations of three spelled out phrases:

(77) a. $d(A)_{QP}$ = { Q < N_1 }
b. $d(A)_{VP}$ = { V < D_1, V < N_1, D_1 < N_1 }
c. $d(A)_{DP_2}$ = { D_2 }

As the linearization algorithm has put no element in between the terminals Q and D_1, they are adjacent at this point in the derivation. Therefore, they can undergo Fusion Under Adjacency. Once Q and D_1 have fused, the terminal onto which Q and D_1 are jointly mapped will occupy the positions assigned to Q and D_1 in the linearization in (77). The result of Fusion Under Adjacency of Q and D_1 is given in (78).

(78) a. $d(A)_{QP}$ = { Q = D_1 < N_1 }

b.

$$d(A)_{VP} = \left\{ \begin{array}{rcl} V & < & Q = D_1 \\ V & < & N_1 \\ Q = D_1 & < & N_1 \end{array} \right\}$$

c. $d(A)_{DP_2}$ = { D_2 }

After this, T is merged with vP. T is the licensor of verbal ellipsis, i.e. it triggers deletion of its complement (here vP). Because ellipsis is derivational (Aelbrecht 2009), the ellipsis site is transferred to PF as soon as the licensing head T is merged (cf. section 4 of chapter 2). Following Fox & Pesetsky (2003, 2004a), ellipsis of vP involves (i) the non-pronunciation of any terminal element dominated by vP and (ii) the deletion from the Ordering Table of all ordering statements referring to the terminal elements dominated by vP (chapter 2, section 4). Crucially, this entails that ellipsis targets (the ordering statements referring to) the terminals v, V, Q, D_1, and N_1 (all dominated by vP). The terminals V, Q, D_1 and N_1 had already been ordered with respect to each other when VP was sent off to PF and when QP was spelled out because it constituted a complex left branch. Q and D_1 became jointly mapped through Fusion Under Adjacency. These ordering statements are deleted (cf. (79)a, (79)b). No new ordering statements referring to v are added (cf. (79)c).

(79) a. $d(A)_{QP}$ = { ~~$Q = D_1 < N_1$~~ }

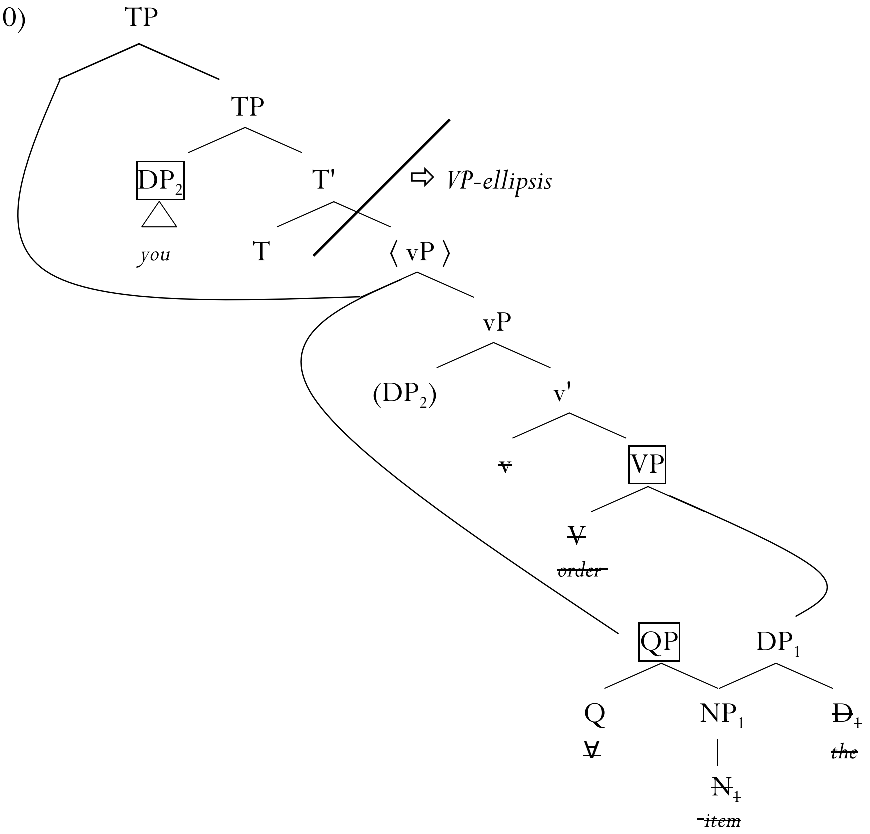
b. $d(A)_{VP}$ = {
~~$V < Q = D_1$~~
~~$V < N_1$~~
~~$Q = D_1 < N_1$~~
}

c. $d(A)_{vP}$ = { }

As Fusion under Adjacency between Q and D will always takes place before verbal ellipsis occurs, the quantificational determiner will have been formed before verbal ellipsis, which explains why formation and QR of an object QP in a verbal ellipsis context is allowed.

Importantly, the subject DP_2 in Spec,vP and the object QP in the vP-edge can escape the ellipsis site. Aelbrecht (2009) argues that all operations targeting the projection of the licensor (i.e. TP) occur simultaneously with the triggering of the ellipsis. As such, the subject DP_2 can be remerged to become the specifier of TP and the object QP can be remerged, adjoining to TP, simultaneously with T's complement (vP) being transferred to PF for deletion. Note that raising of QP to adjoin to TP is allowed by *Scope Economy*, as it results in reversing the scopal relation with the modal in T. After all this, the rest of the structure (i.e. the C-head) is merged and after completion of the CP-phase, its TP-complement is spelled out.

(80)



Looking at the structure in (80), a non-trivial question arises, though. If the QP is able to escape the ellipsis site to outscope the modal (because of Aelbrecht's (2009) derivational ellipsis), why is it not linearizable in the TP-area? That is, why are linearization statements such as $\{ Q < T \}$, $\{ T < Q \}$, or $\{ N_1 < D_2 \}$ lacking?

Note that spelling out QP (i.e. Q and N(P)$_1$) does not lead to a convergent derivation. D$_1$ is always elided as part of the verbal ellipsis site: D1 is the head of the DP$_1$-complement of V, only the NP$_1$-part of which has been remerged. As such, there will be no head D$_1$ for the Q-head to fuse with and Q and D$_1$ are not able to undergo Fusion (again). Q cannot be mapped onto a lexical item on its own, and can thus not be expressed morphologically.[72] The derivation will crash at the PF-interface: **You can order item on the list* is not a grammatical sentence of English.

[72] Here, Q differs from Neg in that the latter can be expressed morphologically on its own (cf. especially section 5 in chapter 3). That is, lack of Fusion between Neg and D does not lead to a non-convergent derivation, while lack of Fusion between Q and D results in a crash (at the PF-interface).

It could simply be argued that there is a choice as to whether or not spell out/linearize the QP in the TP-domain. Spelling out the QP in the TP-area leads to a crash, not spelling it out does not. Of course, the question then arises why this 'choice' is only available to QPs escapting the ellipsis site, and not for instance to the subject DP in Spec,TP, or WH-phrases is Spec,CP (which both need to be spelled out). The former is illustrated in the VP-ellipsis example in (81), the latter in the sluice in (82):

(81) Can you order every item on the list? Of course **you** can.

(82) John has ordered something but I don't know **what**.

Not spelling out the subject in Spec,TP in (81) would, however, lead to a violation of the EPP (the requirement that Spec,TP be filled). The EPP properties of T in (81) require movement of the subject to (and spell-out of the subject in) Spec,TP. Merchant (2001), Brattico & Huhmarniemi (2006), and van Craenenbroeck & den Dikken (2006) argue that the EPP is a PF condition. Merchant (2001) and van Craenenbroeck & den Dikken (2006) have shown that movement of the subject to (or spell-out in) Spec,TP does not need to occur if the EPP is not violated (cf. also den Dikken et al. 2000; van Craenenbroeck 2010). For instance, if T is part of a clausal ellipsis site, the EPP is suspended: if T is elided at (or not shipped off to) PF, "then the EPP is not in effect" (van Craenenbroeck & den Dikken 2006:655). In the case under discussion here, however, T is not elided (it is the licensor of ellipsis) and the EPP cannot be violated.

English interrogative WH-phrases (and, hence, sluicing remnants as well) are inherently focused, i.e. they carry a [focus] feature (cf. Horvath 1986; Rochemont 1986; Stjepanović 1995; Kim 1997). As shown by Kim (1997) and Romero (1998), for instance, sluicing remnants – such as *what* in (82) – must carry focal stress: the sluiced WH-word "in the elliptical clause is highlighted with contrastive focal intonation" (Romero 1998:11). Not spelling out the WH-remnant in a sluice would obviously violate this requirement.

Thus, although there is a choice as to whether or not to spell out the subject in Spec,TP or the WH-phrase in Spec,CP, one of the choices (i.e. not spelling out) is unavailable on independent grounds. For a QP in the TP-area there is, in principle, a choice to spell out the QP in the TP-domain or not, but spelling out the QP in the

TP-area leads to a crash at PF, while not spelling it out there leads to a convergent derivation.[73]

4 QR in Johnson (2010a, 2011a): Discussion

As discussed in section 3.1 of this chapter, Johnson (2010a, 2011a) argues that QR should be analyzed as involving (i) remerge of the NP-part of a quantified expression, with the NP dominated by both DP and QP, and (ii) Fusion between the quantificational head Q and the D-head of the DP object. I adopted both these proposals in this chapter. In this chapter, I explained how QR can both involve Fusion Under Adjacency and escape a verbal ellipsis sight (something that seemed problematic at first sight, given that I argued in the previous chapter that ellipsis bleeds FUA). If QR is always short (targeting vP, either as an intermediate or a final landing site) and if the framework of cyclic Spell-Out/linearization and derivational

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[73] In section 2.3, I have shown that QR of an object QP can escape a verbal ellipsis site to outscope the sentential negator *n't*. In section 3.1.3 of chapter 3, I argued that *n't* always realizes the high polarity head Pol_1 above T (the licensor of verbal ellipsis). This means that QR needs to target (at least) $PolP_1$ in order for the object QP to c-command and outscope *n't* in Pol_1. Given the discussion in this chapter, this conclusion is not unproblematic, though. I proposed that QR of the object QP has to target TP (the projection of the licensor T), as it cannot escape the verbal ellipsis site otherwise (following Aelbrecht 2009). I also adopted Fox's (2000) *Scope Economy,* which says that a scope-shifting operation targeting a propositional node higher than vP needs to have an interpretational effect. QR of the object QP to TP does not invert the scopal relation of two quantified expressions, however, as T(P) does not contain another quantificational element. If one of the two conditions presented by Aelbrecht and Fox can be dropped, there is no problem: QP simply QRs to TP without any scopal motivation or the QP only raises after Pol_1 has been merged. But let us suppose both conditions are valid. How could QR of the object QP to a position above Pol_1 be allowed?

I propose to adopt (a version of) Miyagawa's (2006, 2011) conception of *Interpretation Economy*. In Miyagawa's proposal, movement is evaluated by Interpretation Economy. An element can only undergo QR if this movement is not semantically vacuous: it must, for instance, create a new scopal relation. However, Miyagawa's implementation of Economy differs from Fox's original conception in that Economy "must apply at the next phase, that is, in the phase subsequent to the phase that contains the optional movement [i.e. QR – TT]" (Miyagawa 2011:21):

(i) *Application Domain of Interpretation Economy*
Interpretation Economy evaluates optional movement in one phase at the next higher phase.
In the root phase the evaluation takes place simultaneously with the movement.
[based on Miyagawa 2011:22, (33)]

If the evaluation of whether or not QR has an interpretational effect only occurs at the next phase (that is, C), movement of the QP can target TP (to escape the ellipsis site), after which it moves further on to $PolP_1$. At the next phase, Interpretation Economy evaluates QR of the object QP to $PolP_1$ in its phasal domain. As a new scopal relation has been created (the object QP outscopes *n't*), Interpretation Economy will allow this raising of the object QP.

ellipsis is adopted, it straightforwardly follows that QR can escape a verbal ellipsis site.

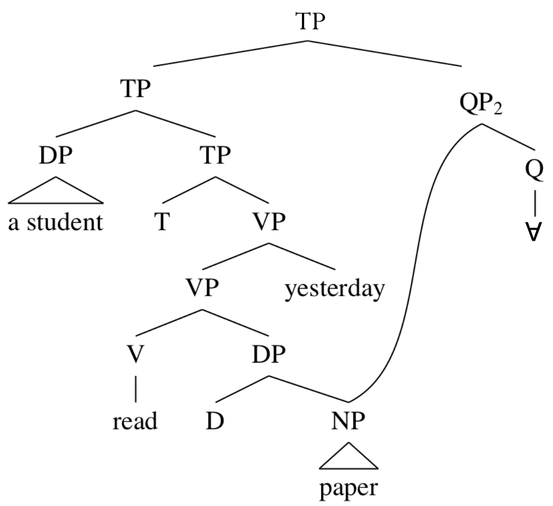
In this section, I discuss two aspects of Johnson's (2010a, 2011a) analysis of QR, showing how my proposal fairs better: the first one concerns the driving force of cyclic linearization and the second one the interaction of QR and verbal ellipsis (4.2).

4.1 THE DRIVING FORCE OF CYCLIC LINEARIZATION

Johnson (2010a, 2011a) argues that the quantificational operator Q combines semantically both with NP and with TP. He also proposes that remerge puts an NP in two positions in QR: the NP is both part of the object DP and the higher quantificational phrase; both D and Q combine semantically with the NP, as shown in (30) for (29), repeated here as (84) and (83), respectively.

(83) [Johnson 2011a:21, (48)]
A student read every paper yesterday.

(84) [Johnson 2011a:24, (54)]



Johnson proposes that there is a morphological process Fusion (which I call 'Fusion Under Adjacency' in this dissertation) that combines two terminals into one, which is realized by one lexical item. Two terminals can fuse only if the linearization algorithm assigns them adjacent positions. If Fusion combines the terminals Q and D into one, it can get realized as one lexical item (*every* in the case of the universal quantifier ∀). When looking at (84), it is not obvious, though, how Fusion brings together the Q-head and the D-head, as these are clearly not adjacent in the phrase marker. Johnson argues that there is a way of making Q and D adjacent. He speculates that there is a condition that requires the terms in a phrase marker to be expressed morphologically. This condition will for instance require the Q-head in (84) to be mapped onto matching morphology. (85)

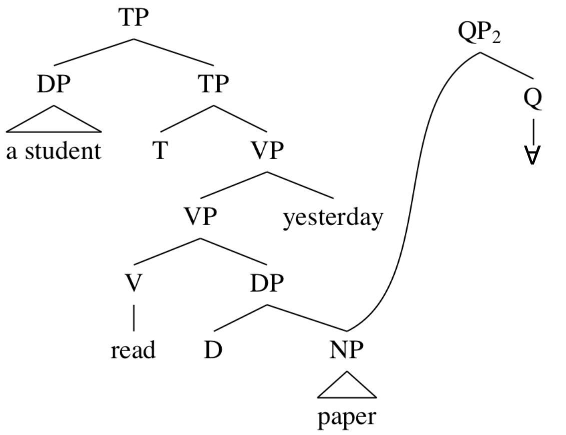
(85) [Johnson 2011a:24, (53)]

a. Principle of Full Interpretation (morphology)
Every terminal in a phrase marker must be expressed morphologically.

b. English particular properties of determiners
Every QR'able determiner (e.g. *every, many,* etc.) can only insert into a position where [D] and Q fuse.

Johnson proposes that this condition forces Q to be fused with D, as it cannot survive on its own. Fusion, however, requires of the to-be-fused terms that they are adjacent. Therefore, "Fusion may look like an inappropriate means for bringing Q and D together in [(84)] because they are clearly not adjacent in the phrase marker" (Johnson 2011a:13). Johnson suggests that, therefore, fusion has to occur before the structure in (84) is built by QR: the linearization algorithm has to "run on structures formed before QR has applied. [...] [T]his ability to linearize during the derivation is compelled by [(85)]" (Johnson 2011a:24). As such, the morphological requirements of Q and D force (cyclic) linearization to take place prior to the merger of QP and TP, i.e. at the point of the derivation in (86):

(86) [cf. Johnson 2011a:24, (54)]



The linearization scheme applies to TP and QP independently. The result is (87):

(87) a. The linearization of TP in (86):

a < student	student < T	read < D
a < T	student < read	read < paper
a < read	student < D	read < yesterday
a < D	student < paper	
a < yesterday	student < yesterday	D < paper
		D < yesterday
		paper < yesterday

b. The linearization of QP in (86): { ∀ < paper }

Johnson's definition of 'Adjacency' is repeated here in in (88) (with my addition in (89)):

(88) *Adjacency*
Two terminal items α and β are adjacent if the linearization algorithm puts nothing in between them. [cf. Johnson 2011:25, fn.22]

(89) $\neg\exists x.(\alpha < x \;\&\; x < \beta)$ (and vice versa)

The linearization algorithm has put nothing in between D and ∀ in (87). Therefore, D and ∀ are allowed to fuse, after which they get mapped onto an appropriate vocabulary item (the quantifier *every*). *Every* will then occupy the positions assigned to D and ∀ in (87). In the end, the linearized string will be *a student read every newspaper yesterday*, with the QRed phrase spelled out in its original position. Because the linearization scheme was forced to apply before QP merged into the larger structure, "the material that is in both the QP and the larger structure will get its position fixed relative to the rest of the structure before the QP's position in the larger structure can be computed. This is how the effect of making a QR'd term be spelled out in the lower position is achieved" (Johnson 2011a:25-26). To guarantee that the positions assigned cannot be altered at some later stage in the derivation, Johnson proposes that positions assigned by the linearization algorithm at some stage in the derivation cannot be changed later on (following Fox & Pesetsky 2003, 2004a,b). Secondly, he needs to ensure that the linearization algorithm runs at the point in the derivation immediately before the QP merges to the rest of the structure. Therefore, he proposes the following constraint:

(90) [Johnson 2011a:26, (58)]
Apply the linearization algorithm as late in the derivation as possible.

Although my analysis of negative indefinites (chapter 3) and QR (this chapter), takes some of the ingredients of Johnson's (2010a, 2011a) analysis of QR as a starting point, it avoids several problems raised by it.

First of all, I have not adopted Johnson's proposal of how to make the two components of the determiner adjacent. He relies on the Principle of Full Interpretation to force fusion, and therefore linearization, to occur before QR merges QP with TP. It is the morphological requirements of Q and D that force cyclic linearization to take place before merger of QP and TP. The fact that morphological requirements force Spell-Out and linearization at some point in the derivation is, however, impossible to implement in a framework like Distributed Morphology (Halle & Marantz 1993), where narrow syntax (i.e. Merge) only takes features or feature bundles as its input. Morphophonological information about the terminals only becomes available *after* Spell-Out, in the PF-component of the grammar. In this framework, it is impossible for certain terminals to *force* Spell-Out and linearization, in order to undergo Fusion Under Adjacency to obey the Principle Of Full Interpretation: this involves major lookahead. Furthermore, this information is simply not available in narrow syntax.

Moreover, Johnson adds the condition in (90), which says that the linearization algorithm has to be applied as late in the derivation as possible. This condition seems rather ad hoc, though: it is unclear which properties of the grammar would motivate this condition (as also acknowledged by Johnson (2011a:26)).

In my analysis of negative indefinites (chapter 3) and QR (this chapter), the cyclic Spell-Out/linearization at certain points in the derivation follows from independent principles of the grammar. The Chomskyan PIC requires that a phasal domain (the complement of the phase head) be spelled out once the phase has been completed. Secondly, complex left branches have to be transferred to PF before they are merged in the clausal structure (following Uriagereka 1999). These principles have been proposed on independent grounds in the literature, when dealing with phenomena other than negative indefinites or Quantifier Raising. The properties of English negative indefinites and QR follow nicely when embracing the PIC and Spell-Out of complex left branches. The analysis proposed here does not have to resort to lookahead or other ad hoc principles.

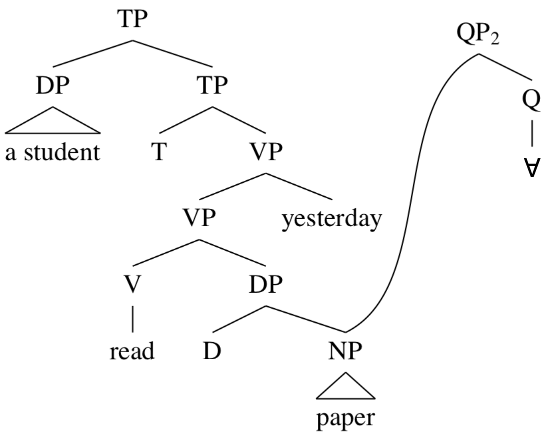
4.2 QR AND VERBAL ELLIPSIS

Consider the ambiguous sentence in (91), the inverse scope reading (∀>∃) of which is our primary concern here, and consider again the structure in (86), proposed by Johnson (2010a, 2011a).[74] For Johnson (2010a, 2011a) QR of the object QP targets the TP-area.

(91) A professor read every paper yesterday and a student did, too.
(∃>∀), (∀>∃)

[74] Recall from sections 1.1 and 2.2 of this chapter that we do not know for certain whether the inverse scope reading of (91) involves QR (rather than QL/reconstruction). For the present discussion, I follow Johnson's analysis that a sentence like this does involve QR to the TP area and I point out the problems arising in the context of verbal ellipsis. The same concerns arise, for instance, for QR across a modal in T.

(86) [cf. Johnson 2011a:24, (54)]



Recall that verbal ellipsis is licensed by T, i.e. T triggers ellipsis of its complement (cf. section 4 of chapter 3). Thus, ellipsis targets VP in the structure in (86). As ellipsis takes place in the course of the derivation (Aelbrecht 2009), the ellipsis site VP is sent off to PF (marked for ellipsis) as soon as the licensing head T is merged (cf. section 4 in chapter 2). Following Fox & Pesetsky (2003, 2004a), ellipsis of VP involves (i) the non-pronunciation of any terminal element dominated by VP and (ii) the deletion from the Ordering Table of all ordering statements referring to the terminal elements dominated by VP (cf. section 4 in chapter 2). This entails that ellipsis targets (the ordering statements referring to) the terminals V, D, N, and Adv (*yesterday*). All ordering statements referring to the terminals dominated by VP will be deleted, the result of which is shown in (92).

(92) The linearization of VP in (86): d(A) = { }

Johnson (2010a, 2011a) assumes that QP (as well as TP) is spelled out and linearized right before the QP and TP are merged together.[75] This is the point in the derivation where Q and D would normally become adjacent and undergo Fusion. However, the object DP has, as part of the VP-ellipsis site, been subject to ellipsis. This means that the terminals in DP (D and N) have been elided: these terms are not pronounced and

[75] In the cyclic model I have adopted in the previous chapters, this is also the case: it follows from the fact that QP is a complex phrase adjoining to TP. As a complex phrase, it has to be spelled out before it merges to TP (cf. section 3.3.1 of chapter 2).

linearization statements referring to them are ignored. As D has already been elided at this point, there is nothing for Q to fuse with. Fusion between Q and D is blocked because of ellipsis. Only Q remains. Q cannot be spelled out as an independent lexical item: there is no other lexical item than fused *every* to lexicalize ∀ (cf. "Every QR'able determiner [...] can only insert into a position where [D] and Q fuse" (Johnson 2011a:24)). Therefore, the derivation will crash. Thus, (91) is predicted to be ungrammatical (at least under the inverse scope reading) under Johnson's (2010a, 2011a) 'adjunction to TP'-analysis, contrary to fact.[76]

Summing up, if Johnson's proposal that QR of the object QP targets the TP-area and that Spell-Out and linearization are cyclic (the latter adopted here as well) is combined with the view that ellipsis is derivational (as proposed by Aelbrecht 2009 and adhered to here), it is predicted that verbal ellipsis will block QR (to TP). We have seen, however, that this is not the case (cf. section 2). I proposed that if QR is obligatorily short, always targeting vP, the observation that QR is not bled by verbal ellipsis follows straightforwardly. For my argumentation it is crucial that the Q- and D-parts of the quantificational determiner undergo Fusion Under Adjacency before (one of) these elements are targeted by verbal ellipsis. If FUA takes place before ellipsis targets the complement of T, the vP-ellipsis site can contain an object quantifier. This can only be accomplished if the QP adjoins in the vP-periphery.

Concluding, while I take some of the components of Johnson's (2010a, 2011a) multidominant analysis of Quantifier Raising as a starting point for my account of negative indefinites and QR, the cyclic, derivational view on Spell-Out, linearization, and ellipsis introduced in chapter 2 and implemented in chapter 3 and this chapter fares better in several ways. The properties of English QR (and English negative indefinites, chapter 3) – including their interaction with ellipsis – follow nicely when embracing cyclic Spell-Out/linearization (specifically, the PIC and Spell-Out of complex left branches), derivational ellipsis, and short QR.

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[76] Note that, even if merger/Spell-Out of QP happens simultaneously with ellipsis of VP (as proposed by Aelbrecht 2009), Fusion is still not possible, as D is still being deleted before Fusion can occur.

5 Conclusion

In this chapter, I have discussed the interaction of QR and verbal ellipsis in English. It was shown (inconclusively) on the basis of scope interactions between subject and object QPs and (conclusively) on the basis of scope interactions between an object QP and another quantificational operator (sentential negation *n't* and a modal) that QR can raise an object QP out of a verbal ellipsis site.

In Johnson's (2010a, 2011a) analysis, QR is the result of remerge of the NP-part of a quantificational phrase and Fusion between two adjacent heads, Q and D. I adopted this proposal. In this chapter, I explained how QR can both involve Fusion Under Adjacency and escape a verbal ellipsis site. This seemed surprising at first sight, given that I argued in chapter 3 that verbal ellipsis bleeds FUA. I argued that the facts straightforwardly follow if (i) one adopts the framework of cyclic Spell-Out/linearization and derivational ellipsis introduced in chapters 2 and 3 of this dissertation and (ii) QR is always short, targeting the vP-periphery. The latter proposal was supported by ample evidence from the literature. In particular, I adopted the view that QP must target a clause-denoting node (a closed proposition of type *t*). This operation is subject to *Shortest Move,* which states that QR must move an object QP to the closest clause-denoting element that dominates it, i.e. vP.