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Contrast and Verb Phrase Ellipsis:  
Triviality, Symmetry, and Competition

A dissertation submitted in partial satisfaction of the  
requirements for the degree Doctor of Philosophy  
in Linguistics

by

Richard Stockwell

2020

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## ABSTRACT OF THE DISSERTATION

Contrast and Verb Phrase Ellipsis:  
Triviality, Symmetry, and Competition

by

Richard Stockwell

Doctor of Philosophy in Linguistics

University of California, Los Angeles, 2020

Professor Yael Sharvit, Co-chair

Professor Timothy A. Stowell, Co-chair

This dissertation argues that contrast is crucial to verb phrase ellipsis (VPE): VPE must be contained in a phrase E that differs in meaning from an antecedent A. Previous research has required A to be a focus alternative to E (e.g. Rooth 1992b, Heim 1997, Fox 2000, Takahashi & Fox 2005). In the simplest case, A and E can have the same meaning, which might seem desirable from the perspective of identity. The thesis here, unsurprising if ellipsis has something in common with focus (Rooth 1992a), is that A must be a proper alternative to E (cf. Griffiths 2019). This contrast requirement comes to light from studying the interaction of VPE with triviality, symmetry, and competition from sluicing. The sameness that is inherent to triviality, created by symmetry, and in the vicinity in MaxElide effects reveals the explanatory role that contrast plays in ellipsis licensing.

After chapter one introduces ellipsis, identity and contrast, chapter two establishes the contrast requirement, starting from the observation that ellipsis is ungrammatical in tautologous conditionals; e.g. *If John is wrong, then he is \*(wrong)*. Further data involving

discourse antecedents, negation, and intensionality favour a theory that attributes the problem to contrast failure in ellipsis licensing over one that attributes the problem to triviality (cf. Gajewski 2002, 2009). Chapter three adds VPE with symmetrical predicates to the literature on ellipsis mismatches; e.g. *John wanted to dance with Mary, but she didn't want to (dance with him)*. Symmetry creates semantic identity, overcoming non-identity in form, but can also lead to contrast failures. VPE with predicates like *kiss* further shows that alternative-hood is enforced only in one direction between antecedent and ellipsis (Rooth 1992b, Fox 2000) rather than both (Griffiths 2019; cf. Merchant 2001). Chapter four critically surveys theories of MaxElide effects; e.g. *John ate something, but I don't know what (\*he did)* (Schuyler 2001). The effect is standardly explained in terms of competition, with VPE ungrammatical for losing to sluicing (Merchant 2008b). Competition theories crucially allow equality of A and E (esp. Takahashi & Fox 2005), placing them in conflict with this dissertation's emphasis on contrast. The chapter addresses this point of tension by offering critique of competition theories, and evaluating the prospects for an alternative account in terms of contrast (Griffiths 2019). By way of conclusion, chapter five considers further respects in which focus and contrast do, and do not, interact with ellipsis. The discussion encompasses Winkler's (2005 et seq.) typology of ellipsis in terms of contrast, reciprocal ellipsis mismatches with *each other*, noun phrase ellipsis, tense, *why NOT*, voice mismatches, question-answer congruence, and *only*.

The dissertation of Richard Stockwell is approved.

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2020

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## CHAPTER ONE

# Introduction to Contrast and Verb Phrase Ellipsis

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# 1 Introduction

This dissertation argues that contrast is crucial to verb phrase ellipsis (VPE): VPE must be contained in a phrase  $E$  that differs in meaning from an antecedent  $A$ . Previous research has required  $A$  to be a focus alternative to  $E$  (e.g. Rooth 1992b, Heim 1997, Fox 2000, Takahashi & Fox 2005). In the simplest case,  $A$  and  $E$  can have the same meaning, which might seem desirable from the perspective of identity. The thesis here, unsurprising if ellipsis has something in common with focus (Rooth 1992a), is that  $A$  must be a proper alternative to  $E$  (cf. Griffiths 2019). These considerations amount to subjecting ellipsis ( $\epsilon$ ) to the necessary condition in (1), to be introduced in detail in section 7:

- (1) For  $\epsilon$  to be elided,  $\epsilon$  must be inside a phrase  $E$  that has an antecedent  $A$  such that either:
- i.  $\llbracket A \rrbracket \in F(E)$  and  $\llbracket A \rrbracket \neq \llbracket E \rrbracket$ ; or
  - ii.  $\llbracket A \rrbracket \subseteq F(E)$

This requirement for contrast comes to light from studying the interaction of VPE with triviality, symmetry, and competition from sluicing. The sameness that is inherent to triviality, created by symmetry, and in the vicinity in MaxElide effects reveals the explanatory role that contrast plays in ellipsis licensing as a crucial part of (1). In chapter two, a failure to contrast explains why ellipsis is ungrammatical in some trivial sentences. In chapter three, alternative-hood provides the requisite flexibility to rule in some ellipsis mismatches involving symmetrical predicates, while the contrast condition is important to ruling out others. And in chapter four, contrast is in tension with a competition-based approach of MaxElide effects (esp. Takahashi & Fox 2005), but may itself be able to explain them (Griffiths 2019). Finally, chapter five considers further respects in which focus and contrast do, and do not, interact with ellipsis.

This introductory chapter situates contrast amongst ellipsis and identity. In outline, section 2 introduces the phenomenon of ellipsis and the idea that elided material is recovered from an antecedent via identity. Section 3 presents two apparent challenges to identity: in tautologous conditionals, ellipsis is not possible, despite total identity; while with symmetrical predicates, ellipsis is possible, despite non-identity in form. Sections 4 and 5 sketch how these two challenges can be met in terms of semantic identity and contrast, before section 6 identifies the point of tension between contrast and traditional accounts of MaxElide effects. Section 7 introduces the condition in (1) in greater detail. Finally, section 8 outlines the structure of the dissertation.

## 2 Ellipsis and identity

‘Ellipsis’ is the omission of parts of sentences whose meaning can be understood based on an antecedent. For example, (2) is pronounced as in (a), but understood with the missing verb phrase (VP) indicated in (b), based on taking the first conjunct as antecedent (elided structure, Merchant 2001):

- (2) a. Mary bought a book, and John did too.  
b. Mary bought a book, and John did ~~buy a book~~ too.

Ellipsis might seem to radically undermine form-meaning mapping, in that we interpret meaning in the absence of phonological form.<sup>1</sup> As it is, however, ellipsis is subject to licensing conditions that enable the recovery of elided content from an antecedent with which it is in some sense ‘identical’ (Hankamer 1971, Sag 1976a, Williams 1977, Sag & Hankamer 1984, Dalrymple et al. 1991, Fiengo & May 1994). In arguing for the parallelism condition in (1), this dissertation seeks to contribute to our understanding of the identity

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<sup>1</sup>See Fiengo & Lasnik (1972) for the succinctest possible statement of this problem.

conditions on ellipsis.

From the outset, it is clear that ellipsis does not require total identity. Already in (2), the verbs mismatch in form — *bought* vs. *buy*. For a mismatch in meaning, consider (3). Fixing *her* as meaning Sally in (a), (b) with ellipsis is ambiguous. On the matching ‘strict’ interpretation, the elided pronoun *her* is read as Sally, with (b) expressing that Jane loves Sally’s mother. On the mismatching ‘sloppy’ interpretation, the elided *her* is read as Jane, with (b) expressing that Jane loves Jane’s mother:

- (3) a. Sally<sub>1</sub> loves her<sub>1</sub> mother . . .  
b. . . . and Jane<sub>2</sub> does ~~love her<sub>1/2</sub> mother~~, too.

The identity conditions on ellipsis must therefore be lax enough to allow for certain mismatches in form (2) and meaning (3). This laxness can be achieved by abstracting slightly away from the strings of words we observe. For the form mismatch in (2), we can assess identity against the bare VP *buy a book*, abstracting away from the tense morphology on *bought*. This move is justified by occasions when we observe bare VPs with tense morphology carried separately by an inserted *do*, as in (4) with negation (a) or positive polarity emphasis (b):

- (4) a. Mary didn’t buy a book.  
b. Mary DID buy a book!

For the meaning mismatch in (3), identity can be restored for each meaning of (3b) if we abstract away from reference alone to recognise that pronouns also have bound variable interpretations. The meaning of (3a) can arise via two distinct routes: one where the pronoun *her* is referential, picking out Sally; and another where *her* is a bound variable, co-varying with the subject of the sentence. For (3a), this ambiguity is moot, since “Sally loves Sally’s mother” and “Sally loves her own mother” amount to the same thing. But in (3b), the ambiguity takes hold, since the referential and bound variable routes lead to

different meanings. The representation in (5) shows the referential route, which results in the strict meaning that Jane loves Sally’s mother; while (6) shows the bound variable route, which results in the ‘sloppy’ meaning that Jane loves her own mother. In each of (5) and (6), identity holds between the ‘Logical Forms’ of the square-bracketed antecedent and elided VPs (Keenan 1971; Sag 1976a):

- (5) a. Sally<sub>1</sub> [ $\lambda x$ . x loves her<sub>1</sub> mother] . . . *Referential*  
       b. . . . and Jane<sub>2</sub> does [ $\lambda x$ . x love her<sub>1</sub> mother], too.
- (6) a. Sally<sub>1</sub> [ $\lambda x$ . x loves x’s mother] . . . *Bound variable*  
       b. . . . and Jane<sub>2</sub> does [ $\lambda x$ . x love x’s mother], too.

Thus identity can be restored for apparent mismatches at a certain level of abstraction. The apparent mismatch in form in (2) can be resolved by abstracting away from tense morphology; and the apparent mismatch in meaning in (3) by abstracting away from pronominal reference to bound variable interpretations of pronouns. The next section presents two kinds of elliptical sentences that present further *prima facie* challenges to identity, before sections 4 and 5 sketch how they can be accounted for in terms of semantic identity and contrast.

### 3 Two challenges for identity

Chapters two and three of this dissertation consider two kinds of elliptical sentences that bear on the issue of identity from opposite directions: one where ellipsis is licensed despite non-identity in form; and another where ellipsis is not licensed despite complete identity.

Ellipsis is licensed despite non-identity in form in ‘participant switching VPE’, exemplified in (7). In (a), the VPs of each clause are pronounced with different forms, since the subject and object switch between them. This difference does not block ellipsis in (b), where the interpretation of (a) remains available:

- (7) a. John<sub>1</sub> wanted to dance with Mary<sub>2</sub>, and she<sub>2</sub> wanted to dance with him<sub>1</sub>, too.  
 b. John<sub>1</sub> wanted to dance with Mary<sub>2</sub>, and she<sub>2</sub> wanted to ~~dance with him<sub>1</sub>~~, too.

Participant switching VPE poses a strong challenge to syntactic accounts of the identity condition on ellipsis. Simplistic syntactic identity does not hold: the antecedent and elided VPs have starkly different structures, since the object switches between them — *dance with Mary* vs. *dance with him*. Unlike the *bought* vs. *buy* mismatch in (2), identity cannot be salvaged by abstracting away from morphological form. Nor can the switch reading be captured by taking account of referential vs. bound variable readings of pronouns along the lines of (5) and (6).

Conversely, ellipsis is not licensed despite complete identity in some trivial sentences. From the perspective of ‘identity’ as the central notion in ellipsis licensing, we might expect total identity to provide the perfect conditions for ellipsis. In this light, the difference in (8) is surprising. We can say trivial things like the tautologous conditional in (a); but not the same sentence with ellipsis in (b):

- (8) a. If John<sub>j</sub> is wrong, then he<sub>j</sub> is wrong.  
 b. \* If John<sub>j</sub> is wrong, then he<sub>j</sub> is ~~wrong~~.

We might expect that any identity condition should be ‘trivially’ satisfied in (b), since there is total identity between the antecedent clause and the clause containing ellipsis; modulo name vs. pronoun, both amount to *John is wrong*. The failure of ellipsis licensing in (b) suggests that, when it comes to identity in ellipsis, it is possible to have too much of a good thing. In particular, we must consider a larger portion of structure that contains ellipsis (Rooth 1992b, Fox 2000) rather than just the elided material itself (Merchant 2001), and find that it contrasts with its antecedent in some way. Compare (8b) with (2) above, where although the antecedent and elided VPs meant the same thing, namely *buy a book*, there was a contrast between the subjects of each clause, *Mary* and *John*. The same contrast obtains in the minimal pair for (8) in (9):

- (9) a. If John is wrong, then Mary is wrong.  
 b. If John is wrong, then Mary is ~~wrong~~.

The next two sections outline how the success of participant switching VPE and the failure of ellipsis in tautologous conditionals can be explained in terms of semantic identity and contrast.

## 4 Symmetry and semantic identity

This section shows that participant switching VPE involves semantic if not syntactic identity. In preview, the object mismatch persists in the face of attempts to reconcile the participant switch reading with syntactic identity. Still, participant switching VPE conforms to semantic identity via the symmetry of the predicate. The related construction of transitivity switching VPE can adjudicate among theories of how much semantic identity is required for ellipsis.

We saw in the previous section that participant switching VPE involves a mismatch in form. In (10), repeated here, the objects mismatch between the antecedent and elided VPs:

- (10) John<sub>1</sub> wanted to dance with Mary<sub>2</sub>, and she<sub>2</sub> wanted to ~~dance with him<sub>1</sub>~~, too.

This mismatch would be avoided if (10) could be analysed as containing only intransitive *dance* in the ellipsis site. However, there are circumstances where the ellipsis site cannot be intransitive. For one, the continuation in (11) follows on naturally from the participant switch reading — Mary may not want to dance with John, but she could still be happy to dance with someone else. Intransitive *dance* in the ellipsis site would be contradictory here — being happy to dance with Bill is incompatible with Mary not wanting to dance at all:

- (11) John<sub>1</sub> wanted to dance with Mary<sub>2</sub>, but she<sub>2</sub> didn't want to  
~~dance with him<sub>1</sub>~~ / # *dance*. She<sub>2</sub> was only willing to dance with Bill<sub>3</sub>.

Second, the ellipsis site must be transitive in (12), so as to provide the collective predicate *meet* with its grammatically mandated co-participants; cf. \**Mary met*. Mismatching objects

(*Mary* vs. *John*) are the only way that the participant switch reading can be grammatically represented:

- (12) Bill<sub>3</sub> expected John<sub>1</sub> to meet Mary<sub>2</sub>, and (in the end) she<sub>2</sub> DID  
~~meet him<sub>T</sub>~~ / \*meet.

In sum, participant switching VPE's challenge to syntactic identity cannot be resolved by intransitive ellipsis sites.

Yet the infinitival clauses in (10) have a very similar meaning due to the symmetry of *dance-with*: if John danced with Mary, it follows automatically that Mary danced with John, and vice versa. Symmetry is the crucial factor in participant switching VPE. Compare non-symmetrical *criticise* — if John criticised Mary, it does not at all follow that Mary criticised John. With this dissimilarity in meaning, participant switching VPE is not possible in (13):

- (13) \* John<sub>1</sub> wanted to criticise Mary<sub>2</sub>, but she<sub>2</sub> didn't want to ~~criticise John<sub>T</sub>~~.

Symmetry only holds if the participants are consistent across antecedent and ellipsis. Hence despite (14) providing another potential antecedent in Bill, the elided pronoun *him* must refer to John, as in (a). Accordingly, the attempt to bring out the 'Bill reading' fails in (b):

- (14) Bill<sub>3</sub> expected John<sub>1</sub> to work with Mary<sub>2</sub>, . . .  
 a. . . and (in the end) she<sub>2</sub> DID ~~work with him<sub>1/\*3</sub>~~.  
 b. ?? . . . but as it turned out she<sub>2</sub> DID ~~work with him<sub>1/\*3</sub>~~.

Of a kin with participant switching VPE is 'transitivity switching VPE', exemplified in (15). Here the antecedent and elliptical clauses switch from intransitive to transitive in (a), and from transitive to intransitive in (b):

- (15) a. John<sub>1</sub> wanted to meet Mary<sub>2</sub>, and (in the end) they<sub>1+2</sub> DID<sub>F</sub> meet.  
 b. John<sub>1</sub> and Mary<sub>2</sub> met, because Bill<sub>3</sub> wanted her<sub>2</sub> to ~~meet him<sub>T</sub>~~.



Symmetry is likewise crucial for transitivity switching VPE. In (15), by the symmetry of *meet*, John and Mary met means the same as John met Mary or Mary met John. With a verb like *kiss*, however, entailment only holds in one direction. John and Mary kissed entails that John kissed Mary, and that Mary kissed John; but not vice versa. Tellingly, transitivity switching VPE is possible with *kiss* only in one direction:

- (16) a. ?? John<sub>1</sub> kissed Mary<sub>2</sub>, even though they<sub>1+2</sub> hadn't expected to kiss.  
 b. John<sub>1</sub> and Mary<sub>2</sub> kissed, even though she<sub>2</sub> hadn't expected to kiss ~~John<sub>1</sub>~~.

The difference in (16) will allow us to adjudicate among theories of the amount of semantic identity required for ellipsis. Requiring the antecedent to be or entail an alternative to the elliptical constituent (Rooth 1992b; Fox 2000) makes the right predictions, following the direction of the entailment in (16b). Additionally requiring the elliptical clause to be or entail an alternative to the antecedent (Griffiths 2019; cf. Merchant 2001), on the other hand, would incorrectly predict (16b) to be as bad as (16a).

In sum, participant and transitivity switching VPE conform to semantic identity via symmetry. We return to VPE with symmetrical predicates in the second half of the next section, which begins by establishing the contrast requirement on ellipsis.

## 5 Triviality and contrast

The previous section sketched how participant and transitivity switching VPE involves semantic identity via symmetry. This section returns to the fact in (8), repeated here, that ellipsis is ungrammatical in tautologous conditionals.

- (17) a. If John<sub>j</sub> is wrong, then he<sub>j</sub> is wrong.  
 b. \* If John<sub>j</sub> is wrong, then he<sub>j</sub> is ~~wrong~~.

There is clearly semantic identity in (17): John is wrong means the same as John is wrong. Since everything is an alternative to itself, a theory imposing only the alternative part of

focus to ellipsis incorrectly predicts (17b) to be good. The correct prediction follows from subjecting ellipsis to a requirement for contrast: an elliptical constituent must have an antecedent which is not merely an alternative to it, but a proper alternative.

Based on further data, chapter two finds in favour of ellipsis being the problem in (17b) — in particular, contrast failure — rather than triviality (cf. Gajewski 2002, 2009). For one, negation counts for contrast in other trivialities, licensing ellipsis in contradictory conjunctions (18) and tautologous disjunctions (19):

- (18) a. John<sub>1</sub> is wrong and he<sub>1</sub> isn't wrong.  
b. John<sub>1</sub> is wrong and he<sub>1</sub> isn't ~~wrong~~.
- (19) a. Either John<sub>1</sub> is wrong, or he<sub>1</sub> isn't wrong.  
b. Either John<sub>1</sub> is wrong, or he<sub>1</sub> isn't ~~wrong~~.

Intensionality also counts for contrast. Illustrating on tautologous free relatives in (20) (cf. Horn 1981), ellipsis fails contrast in (b). Ellipsis is successful on a *de re* reading of the free relative in (d), based on contrast between Mary's beliefs and the actual state of affairs:

- (20) a. John eats what he eats.  
b. \* John eats what he does eat.  
c. Mary believes that John eats what he eats.  
d. Mary believes that John eats what he DOES eat.

Returning to participant switching VPE, respecting contrast means taking account of larger portions of structure. Symmetry is responsible for semantic identity, but at the same time would lead to contrast failure at the level of the embedded clause. Symmetry in the embedded clause creates semantic identity, but at the same time would result in contrast failure. Still, contrast can be respected by taking account of the matrix clauses. In (21), for example, focus on *she* sets up a contrast between John and Mary with respect to wanting to dance with the other:

(21) John<sub>1</sub> wanted to dance with Mary<sub>2</sub>, and she<sub>2</sub> wanted to ~~dance with him<sub>1</sub>~~, too.

Without oppositions such as between John and Mary in (21), participant switching is vulnerable to contrast failure.<sup>2</sup> In (22), the fully pronounced (a) may be very redundant, but is perfectly grammatical; whereas the attempt at participant switching VPE in (b) is ungrammatical, due to contrast failure:

(22) a. John<sub>1</sub> wanted both to meet Mary<sub>2</sub>, and for her<sub>2</sub> to meet him<sub>1</sub> (, too).

b. \* John<sub>1</sub> wanted both to meet Mary<sub>2</sub>, and for her<sub>2</sub> to ~~meet him<sub>1</sub>~~ (, too).

Contrast failure likewise arises with full-blown redundancy in (23):

(23) a. John<sub>1</sub> danced with Mary<sub>2</sub>, and she<sub>2</sub> danced with him<sub>1</sub>.

b. \* John<sub>1</sub> danced with Mary<sub>2</sub>, and she<sub>2</sub> did ~~dance with him<sub>1</sub>~~.

As in the trivial cases in (18) and (19) above, negation usually counts for contrast. In (24), negation rescues the contrast failure from (22).

(24) a. John<sub>1</sub> wanted (both) to meet Mary<sub>2</sub>, and for her<sub>2</sub> NOT<sub>F</sub> to meet him<sub>1</sub>.

b. John<sub>1</sub> wanted (both) to meet Mary<sub>2</sub>, and for her<sub>2</sub> NOT<sub>F</sub> to ~~meet him<sub>1</sub>~~.

The negated counterpart to (23), however, (25) presents an exception to this generalisation:

(25) a. John<sub>1</sub> danced with Mary<sub>2</sub>, but she<sub>2</sub> didn't dance with him<sub>1</sub>.

b. \* John<sub>1</sub> danced with Mary<sub>2</sub>, but she<sub>2</sub> didn't ~~dance with him<sub>1</sub>~~.

What marks (25b) as the odd one out is that the assertion contradicts the ellipsis licensing calculations. Participant switching makes crucial use of symmetry for John dancing with Mary to count as the same as Mary dancing with John, only for the sentence to assert the opposite. In other words, (25b) contradicts the route to its own construction.

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<sup>2</sup>Since a full account of VPE with symmetrical predicates relies on contrast in this way, chapter three on symmetry follows chapter two on triviality and contrast.

Overall, semantic identity via symmetry rules in participant and transitivity switching VPE, despite the mismatch in form; while total identity, including in tautologous conditionals, is ruled out by contrast. These requirements are imposed by clause (i) of the focus-based condition on ellipsis stated at the outset in (1). Before section 7 introduces (1) in detail, the next section identifies a point of tension between contrast and competition-based theories of MaxElide effects.

## 6 MaxElide effects and contrast

With contrast, we gain an explanation for why ellipsis is ungrammatical in tautologous conditionals, and at times with symmetrical predicates. This section considers what we stand to lose by subjecting ellipsis to a contrast requirement. Beyond the extremes of triviality and symmetry, it can be difficult to observe the contrast requirement taking effect. It is, however, in tension with traditional theories of MaxElide effects. As illustrated in (26) (Schuyler 2001), from a base sentence like (a), sluicing (b) is grammatical, but VPE (c) is not:

- (26) a. John ate something, but I don't know what he ate *t*. *Pronounced*  
 b. John ate something, but I don't know what he ate *t*. *Sluicing*  
 c. \* John ate something, but I don't know what he did eat *t*. *VPE*

The standard family of analyses of (26) are grounded in competition: (c) is ungrammatical because it loses to (b) (Merchant 2008b; Takahashi & Fox 2005; Messick & Thoms 2016; Hartman 2011; cf. Jacobson 2019a,b). To maintain alternative-hood in spite of A-bar movement out of the ellipsis site, ellipsis licensing must take account of the whole embedded clause, *what he ate*, in (26). A 'MaxElide' constraint forces maximal elision in this domain. The option of sluicing (b) therefore outcompetes and rules out VPE (c).

Absent A-bar extraction, however, ellipsis is free to be big or small in (27):

- (27) a. Mary said John ate cheese. SAM also said John ate cheese.  
b. Mary said John ate cheese. SAM also did ~~say John ate~~ cheese.  
c. Mary said John ate cheese. SAM also said he did ~~eat cheese~~.

Evaluating ellipsis licensing at or above the matrix VP, maximal elision should yield matrix VPE, as in (b). For embedded VPE in (c) to count as maximal, ellipsis must be licensed based on a span of structure smaller than the matrix VP. But below the matrix VP, there is no contrasting material: just *John ate cheese* across both sentences. To avoid bad predictions on plain VPE, therefore, it is crucial for competition-based theories of MaxElide effects that equality is allowed in ellipsis licensing.

There is thus a major point of tension between competition-based analyses of MaxElide effects and the thesis of this dissertation that VPE is subject to a contrast requirement. Chapter four sets about defusing this tension by critically surveying competition-based theories of MaxElide effects. As it turns out, these theories face insurmountable-looking empirical problems, quite apart from the issue of contrast. At root, the claim that VPE is bad because sluicing is good predicts that VPE will be good where sluicing is bad. In fact, there are many circumstances where VPE remains bad in the absence of competition from sluicing.

Moreover, Griffiths (2019) has proposed an analysis of MaxElide effects in terms of contrast failure.<sup>3</sup> Already in (26), notice how the embedded clauses amount to the same thing across the conjuncts in (c); roughly, *John likes x*. As Charlow (2020) points out, the letter of Griffiths's (2019) analysis includes fundamentally flawed assumptions regarding the (in)compatibility of predicate abstraction with alternative semantics (Rooth 1985). However,

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<sup>3</sup>As far as I am aware, Griffiths (2019) is the only other example of an explicit argument for a contrast condition on ellipsis independent of the work collected in this dissertation.

the spirit of accounting for (26) in terms of contrast failure rather than competition bodes well; not only for defusing the tension with the traditional competition analyses, but for improving upon them.

The next section introduces the condition on ellipsis in (1) in more detail, before section 8 outlines the structure of the dissertation.

## 7 Focus membership and contrast

The thesis of this dissertation is that contrast is a crucial component of the necessary condition on verb phrase ellipsis (VPE) from (1):

- (1) For  $\varepsilon$  to be elided,  $\varepsilon$  must be inside a phrase  $E$  that has an antecedent  $A$  such that either:
- i.  $\llbracket A \rrbracket \in F(E)$  and  $\llbracket A \rrbracket \neq \llbracket E \rrbracket$ ; or
  - ii.  $\llbracket A \rrbracket \subseteq F(E)$

This ‘parallelism’ condition is Rooth’s (1992a) theory of focus interpretation applied to ellipsis (cf. Rooth 1992b, Tancredi 1992, Fox 2000). However, research on ellipsis in the vein of (1) has omitted the contrast condition, assuming clause (i) to consist of only the focus membership condition,  $\llbracket A \rrbracket \in F(E)$  (e.g. Heim 1997, Rooth 1992b, Fox 1999, Fox 2000: 85, ex. 16, Takahashi & Fox 2005, Crnic 2015; cf. Griffiths 2019). By studying the interaction of verb phrase ellipsis with triviality, symmetry, and competition from sluicing, this dissertation shows that the contrast condition has explanatory power in ellipsis licensing. This section introduces (1) in more detail.

The condition in (1) makes demands of a phrase E that contains an elided constituent  $\epsilon$ . The larger phrase E must have an antecedent A that satisfies one of two conditions.<sup>4</sup> This dissertation will have less to say about clause (ii) of (1). Clause (ii) applies to antecedents whose ordinary meanings are sets; for example, questions (Hamblin 1973). It requires that the antecedent be a subset of the focus value of E,  $F(E)$ .  $F(E)$  is calculated by replacing F(ocus)-marked constituents in E with things of the same type and collecting the results into a set.

Clause (i), meanwhile, comes in two parts. The focus membership condition,  $\llbracket A \rrbracket \in F(E)$ , requires that the ordinary semantic value of A be a member of the focus value of E. In other words, A must be an alternative to E. Further, the contrast condition,  $\llbracket A \rrbracket \neq \llbracket E \rrbracket$ , requires that the ordinary meanings of A and E contrast. That is, A must be a *proper* alternative to E. The main contention of this dissertation is that the contrast condition has explanatory power in ellipsis licensing as part of clause (i). The effect of the contrast condition is to prevent the focus-based condition in (1) from being satisfied in the absence of contrastive focus. Focus membership alone is satisfied where the constituent containing ellipsis and its antecedent mean the same thing. At base, where E contains no focus, its focus value is the singleton set containing its ordinary value. Focus membership can then be satisfied based on this singleton set as in (28):<sup>5</sup>

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<sup>4</sup>In the realm of focus, Rooth (1992a: 93) terms clause (i) of (1) the individual case and clause (ii) the set case. Compare Johnson (2019) on Type 1 versus Type 2 ellipsis. Compare further Winkler (2005) et seq. on contrastive versus non-contrastive ellipsis, discussed in chapter five, section 1.

<sup>5</sup>Rooth (1992a: 90, 93) also places something of a contrast requirement on clause (ii), for when the ordinary meaning of the antecedent is a set. Further to being a subset of the focus value of E,  $\llbracket A \rrbracket \subseteq F(E)$ , the set denoted by  $\llbracket A \rrbracket$  must contain both the ordinary semantic

$$(28) \quad \times \quad \llbracket A \rrbracket = \llbracket E \rrbracket \quad F(E) = \{ \llbracket E \rrbracket \} \quad \llbracket A \rrbracket \in F(E)$$

Strengthening focus membership with contrast thus amounts to a requirement that the antecedent be a ‘proper’ alternative to the constituent containing ellipsis.<sup>6</sup> This dissertation

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value of  $E$ ,  $\llbracket E \rrbracket$ , and an element distinct from  $\llbracket E \rrbracket$ . The effect of this requirement is to prevent successful use of clause (ii) with a singleton set as antecedent. That is, in the situation in (i), where  $\llbracket A \rrbracket$  is merely the ‘set version’ of  $\llbracket E \rrbracket$ :

$$(i) \quad \times \quad \llbracket A \rrbracket = \{ \llbracket E \rrbracket \} \quad F(E) = \{ \llbracket E \rrbracket \} \quad \llbracket A \rrbracket \subseteq F(E)$$

Unlike clause (i) contrast failures, I am unaware of any empirical circumstances where this ‘trivial set antecedent’ situation might arise. As such, I have not written this contrastivity requirement into clause (ii) of (1).

<sup>6</sup>The focus membership and contrast conditions are stated separately in clause (i) of (1). We might wonder whether this separation misses an insight regarding focus alternatives. Defining the focus alternatives of a constituent to be ‘proper’ alternatives, excluding the ordinary meaning, would collapse the focus membership and contrast conditions into one. That is, we might calculate focus values by replacing F-marked constituents with things of the same type and collecting them into a set; but to the exclusion of the ordinary values of F-marked constituents.

This approach would certainly save some ink, here and elsewhere (e.g. with the semantics of *too*, Heim 1992). However, double focus shows that defining focus values as ‘proper’ alternatives is to do the ‘proper’-ness too soon. Consider (i), where *only* associates with both *MARY* and *SUE*. Intuitively, the sentence means that John introduced Mary to Sue and made no further introductions. With the standard, inclusive definition of focus alternatives (Rooth 1985), these are the truth conditions derived in (a). With ‘proper’ alternatives, the meaning derived in (b) fails to negate a load of alternatives having to do with Mary and Sue. John introducing Dave to Sue, or Mary to Gary, for example, are not members of the set of



sets out in chapter two by arguing that ellipsis in tautologous conditionals (8) presents a problem of this type.

Overall, it might be surprising from the perspective of ‘identity’ as crucial to ellipsis licensing that difference should play such a role. This surprise dissipates, however, considering that (1) is fundamentally a focus condition (Rooth 1992a; Tancredi 1992). In the literature on contrastive focus, there is no question that  $\llbracket A \rrbracket \neq \llbracket E \rrbracket$  is a crucial component of the theory (e.g. in overview Repp 2016: esp. ex. 9). In subjecting ellipsis to a focus-based identity condition, fully transposing all the pieces from the theory of focus includes strengthening focus membership with contrast. The resulting condition in (1) amounts to a requirement that there be contrastive focus above ellipsis sites whose antecedent does not denote a set.

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‘proper’ focus alternatives in (b), and so are incorrectly predicted to be compatible with an utterance of (i):

- (i) John only introduced MARY to SUE.

LF:  $[_B \text{ only } [_C \text{ John introduced MARY}_F \text{ to SUE}_F ] ]$

$\llbracket B \rrbracket = 1$  iff  $p = [j \text{ introduced } m \text{ to } s] = 1$  and  $\forall q ((q \neq p \wedge q \in F(C)) \rightarrow \neg q)$

- a. ✓ Inclusive alternatives:

$F(\text{MARY}_F) = \{ y \mid y \in D_e \}$        $F(\text{SUE}_F) = \{ z \mid z \in D_e \}$

$F(C) = \{ j \text{ introduced } y \text{ to } z \mid y \in D_e, z \in D_e \}$

- b. ✗ ‘Proper’ alternatives:

$F(\text{MARY}_F) = \{ y \mid y \in D_e, y \neq m \}$        $F(\text{SUE}_F) = \{ z \mid z \in D_e, z \neq s \}$

$F(C) = \{ j \text{ introduced } y \text{ to } z \mid y \in D_e, y \neq m, z \in D_e, z \neq s \}$

## 8 Structure of the dissertation

### 8.1 Introduction

This section outlines the structure of the dissertation, chapter by chapter. Each chapter begins with a section 0 that situates it in the context of the dissertation. Otherwise, each chapter is self-contained. Inevitably, therefore, there is occasional repetition of material across chapters.

### 8.2 Triviality and contrast in verb phrase ellipsis

Chapter two establishes that verb phrase ellipsis requires contrast, per the parallelism condition in (1). It does so by examining ellipsis in trivial sentences, where the potential for contrast is absent or slight. The chapter concludes that a theory requiring contrast between an elliptical constituent and its antecedent provides a fuller account of the facts than one that attributes the problem to trivial truth conditions. Subsequent chapters use, and provide reinforcing evidence for, a contrast condition on verb phrase ellipsis by studying ellipsis with symmetrical predicates, and so-called MaxElide effects.

In abstract, chapter two compares two theories to account for the ungrammaticality of ellipsis in tautologous conditionals, e.g. *If John is wrong, then he is \*(wrong)*. One theory attributes the ungrammaticality to a failure of contrast as part of ellipsis parallelism (Rooth 1992a,b); the other to triviality at a more abstract, logical level (Gajewski 2009). The latter theory accounts better for the improvement of ellipsis with discourse antecedents, but the former extends more broadly, capturing: double ellipsis; the grammaticality of ellipsis in trivial sentences with negation; the ungrammaticality of ellipsis in some non-trivial self-conjoined sentences; and contrasts involving ellipsis and intensionality. As such, this chapter shows that contrast is crucial to ellipsis parallelism.

### 8.3 Symmetrical predicates in verb phrase ellipsis

Chapter three presents further support for the focus and contrast requirements in clause (i) of (1) by analysing verb phrase ellipsis involving symmetrical predicates. At the same time, the chapter engages with the issue of identity in ellipsis licensing by adding to the literature on ellipsis mismatches.

In abstract, chapter three studies the behaviour of symmetrical predicates (e.g. *meet*, *dance with*) in verb phrase ellipsis. Symmetrical predicates support participant and transitivity switching verb phrase ellipsis, where syntactic identity between the antecedent and elided verb phrases is lacking. Such syntactic mismatches are predicted to be tolerable by the semantic identity condition on ellipsis in (1). Elided material must be contained in a phrase with a semantically parallel antecedent, defined in terms of focus, as commonly assumed (Rooth 1992b et seq.). In addition, the phrase containing elided material must properly contrast with its antecedent, as proposed in chapter two (cf. Stockwell 2018, Griffiths 2019). Furthermore, transitivity switching with partially symmetrical predicates like *kiss* shows that the focus membership requirement is enforced only in one direction between antecedent and ellipsis (Rooth 1992b, Fox 2000) rather than both (Merchant 2001, Griffiths 2019).

### 8.4 Competition and verb phrase ellipsis

Chapter four addresses the tension between contrast,  $\llbracket A \rrbracket \neq \llbracket E \rrbracket$ , and competition-based theories of MaxElide effects, which crucially allow  $\llbracket A \rrbracket = \llbracket E \rrbracket$ . The chapter offers critique of competition theories, and evaluates the prospects for an alternative account that embraces the contrast condition on VPE, as spearheaded by Griffiths (2019).

In abstract, chapter four critically surveys competition theories of MaxElide effects, according to which VPE ungrammatical is ungrammatical for losing to losing. The competition is framed in a variety of ways: in terms of syntactic size, bigger ellipsis defeating smaller (Merchant 2008b, Takahashi & Fox 2005, Hartman 2011); in terms of construction,

sluicing defeating VPE (Messick & Thoms 2016); and in terms of semantic size, ellipsis of a lower type defeating ellipsis of a higher type (Jacobson 2019a,b). The chapter argues against the competition family of analyses. For one, competition occupies a conceptually questionable place in grammar. Moreover, competition theories are descriptively inadequate, failing to rule out VPE in the absence of another winning competitor, and wrongly ruling out some optionality in the size of ellipsis. Since competition theories over- and under-generate VPE in these ways, it seems preferable to treat VPE on its own terms. Griffiths (2019) proposes an analysis in this vein: rather than as the loser of a competition, VPE is bad when ellipsis licensing fails. In particular, Griffiths (2019) subjects VPE to a contrast requirement. The spirit of Griffiths's (2019) proposal chimes well with the arguments for a contrast condition on VPE presented in chapters two and three. While, the letter of Griffiths's (2019) analysis is fundamentally flawed (Charlow 2020), a contrast-based perspective offers refreshing insight into MaxElide effects.

## 8.5 Further directions

By way of conclusion, chapter five considers eight more respects in which focus and contrast do, and do not, interact with ellipsis. The chapter begins by situating the dissertation with respect to Winkler's (2005 et seq.) typology of ellipsis in terms of contrast, and building on chapter three to consider reciprocal ellipsis mismatches involving *each other*. The rest of the chapter provides further commentary on the parallelism condition in (1). We will see that (1) applies to noun phrase ellipsis just as much as verb phrase ellipsis, though not to tense. Previous chapters show that negation counts for contrast in VPE, but it interferes with clausal ellipsis. A case study finds that *why NOT* behaves as a single fused item in requiring the reason and negation to originate in the same clause. The impact of intensionality on voice mismatches, previously attributed to processing effects, can be accounted for in terms of (1), for which overt indefinites provide a means of contrast that implicit existentials do

not. On the downside, clause (ii) of (1) wrongly predicts that ellipsis licensing should track question-answer congruence. The chapter ends by relating a fact about the interaction of *only*, focus, and ellipsis, which lies beyond the purview of the focus-based condition on ellipsis in (1).

## CHAPTER TWO

# Triviality and Contrast in Verb Phrase Ellipsis

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## 0 The contrast condition

This chapter establishes that verb phrase ellipsis requires contrast. It does so by examining ellipsis in trivial sentences, where the potential for contrast is absent or slight. A theory requiring an elliptical constituent to have an antecedent that is a ‘proper’ alternative provides a fuller account of the facts than one that attributes the problem to trivial truth conditions. Subsequent chapters use, and provide reinforcing evidence for, the contrast condition on verb phrase ellipsis by studying ellipsis with symmetrical predicates, and MaxElide effects.

In abstract, this chapter compares two theories to account for the ungrammaticality of ellipsis in tautologous conditionals, e.g. *If John is wrong, then he is \*(wrong)*. One theory attributes the ungrammaticality to a failure of contrast as part of ellipsis parallelism (Rooth 1992a,b); the other to triviality at a more abstract, logical level (Gajewski 2009). While the latter theory accounts better for the improvement of ellipsis with discourse antecedents, the former extends more broadly, capturing: double ellipsis; the grammaticality of ellipsis in trivial sentences with negation; the ungrammaticality of ellipsis in some non-trivial, self-conjoined sentences; and contrasts involving ellipsis and intensionality. As such, this chapter shows that contrast is crucial to ellipsis parallelism.

This chapter supersedes Stockwell (2018): “Ellipsis in tautologous conditionals: the contrast condition on ellipsis”, in Sireemas Maspong, Brynhildur Stefánsdóttir, Katherine Blake and Forrest Davis (eds.), *Proceedings of the 28th Semantics and Linguistic Theory Conference*, 584-603.

## 1 Introduction

Ellipsis might seem to radically undermine form-meaning mapping, in that we interpret meaning in the absence of phonological form. However, licensing conditions on ellipsis shore up the relationship between form and meaning by requiring the elided content to be

recoverable from an antecedent that is in some sense ‘identical’ to the ellipsis. In (0), for example, the fully pronounced (a) has the same meaning as the elliptical (b). We interpret *wrong* in the ellipsis site in (b), drawing on the *if*-clause as antecedent:<sup>1</sup>

- (0) a. If John is wrong, then Bill is wrong (too).  
b. If John is wrong, then Bill is ~~wrong~~ (too).

From the perspective of ‘identity’ as the central notion in ellipsis licensing, the contrast in (1) is surprising. We can say trivial things, like the tautologous conditional in (a); but not the same sentence with ellipsis in (b):<sup>2</sup>

- (1) a. If John<sub>j</sub> is wrong, then he<sub>j</sub> is wrong.  
b. \* If John<sub>j</sub> is wrong, then he<sub>j</sub> is ~~wrong~~.

Despite providing for complete identity with an antecedent, ellipsis is not licensed in tautologous conditionals.

The aim of this chapter is to explain the differing status of (a) versus (b) in (1). For what it’s worth, uttering a tautologous conditional seems to make a negative discourse move, shutting down a topic of conversation and ruling out further discussion. The message conveyed by (1a) might be paraphrased as “John is wrong — deal with it!”<sup>3</sup> But whatever the meaning of (1), the question pursued here is why (a) and (b) differ in grammaticality as a

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<sup>1</sup>~~Strikethrough~~ indicates ellipsis, adopting the PF-deletion approach to ellipsis (Merchant 2001) for concreteness.

<sup>2</sup>Out of the blue, (1b) seems at best to have a ‘main verb’ reading of *is*; i.e. *If John is wrong, then he exists*. See section 4.1 below regarding (1b) with discourse antecedents.

<sup>3</sup>As Horn (1981: 326) puts it with respect to tautologous free relatives (see sections 4.3 and 5, below): “These sentences may be used ... as a way of stonewalling an embarrassing line of questioning, a way of pleading the Fifth.”



function of ellipsis.

This chapter considers two competing accounts for the observation in (1) that ellipsis is ungrammatical in tautologous conditionals. According to the first, discussed in section 2, the problem is the ellipsis, which fails to meet a semantic parallelism condition (Rooth 1992b); in particular, the clause containing ellipsis and its antecedent do not contrast (Rooth 1992a; Griffiths 2019). According to the second, the problem is the tautology, which persists at a more abstract level to cause ungrammaticality; concretely, Gajewski's (2009) theory of Logical-triviality can be extended to enforce ellipsis identity at the level of Logical Skeletons, as discussed in section 3. The two theories account equally well for the basic facts, but their predictions are teased apart against further data in section 4. While the theory based on triviality accounts better for the improvement of ellipsis in tautologous conditionals with discourse antecedents, the theory based on parallelism and contrast extends more broadly to double ellipsis, other trivial sentences with negation, and some non-trivial sentences. Contrasts involving intensionality are discussed in section 5, before section 6 concludes.

## **2 Ellipsis parallelism**

Rooth (1992b) argues that ellipsis is subject to the same semantic redundancy relation as focus (Rooth 1992a). After introducing Rooth's (1992a) theory of focus in the first subsection, the second follows the spirit of Rooth (1992b) in applying his theory of focus to ellipsis. The ungrammaticality of ellipsis in tautologous conditionals provides empirical motivation for a contrast condition on ellipsis.

### **2.1 Rooth's (1992a) theory of focus**

Rooth (1992a: 90, 93) proposes (2) as a constraint on focus interpretation.  $F(\Phi)$  is the focus semantic value of  $\Phi$ , calculated by replacing F(ocus)-marked constituents in  $\Phi$  with things

of the same type and collecting the results into a set:

(2) *Rooth's (1992a) constraint on focus interpretation*

Focus at the level of a phrase  $\Phi$  requires an antecedent A such that either:

- i.  $\llbracket A \rrbracket \in F(\Phi)$  and  $\llbracket A \rrbracket \neq \llbracket \Phi \rrbracket$ ; or
- ii.  $\llbracket A \rrbracket \subseteq F(\Phi)$

Clause (i) pertains to declarative antecedents. It requires first that the ordinary meaning of the antecedent A be a member of the focus semantic value of the constituent containing focus  $\Phi$  — the focus membership condition. Clause (i) additionally requires that A and  $\Phi$  have distinct ordinary meanings — the contrast condition.

By way of example, both of these conditions are met in (3). The proposition that *John likes Mary* is a member of the set of propositions of the form *x likes Mary*, where *x* ranges over individuals; so the focus membership condition is met. Further, the proposition that *John likes Mary* is distinct from the proposition that *Bill likes Mary*, satisfying the contrast condition:<sup>4, 5</sup>

(3) A: John likes Mary.      B: BILL<sub>F</sub> likes Mary, too.

$\llbracket A \rrbracket = \text{like}'(m)(j)$      $\llbracket \Phi \rrbracket = \text{like}'(m)(b)$      $F(\Phi) = \{ \text{like}'(m)(x) \mid x \in D_e \}$

$\llbracket A \rrbracket \in F(\Phi)$  and  $\llbracket A \rrbracket \neq \llbracket \Phi \rrbracket$

Clause (ii) of (2) pertains to question antecedents, whose ordinary meanings are sets of propositions (Hamblin 1973). It requires that the ordinary meaning of A be a subset of the

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<sup>4</sup>Apostrophes indicate metalanguage expressions. The type of *like'* is  $\langle e, \langle e, \langle s, t \rangle \rangle \rangle$ .

<sup>5</sup>The constraint in (2) could also be satisfied at the DP subject level in (3) based on the following:  $\llbracket A \rrbracket = j$ ,  $\llbracket A \rrbracket \in F(\Phi) = \{ x \mid x \in D_e \}$ , and  $\llbracket A \rrbracket \neq \llbracket \Phi \rrbracket = b$ . But the clause level calculations illustrated here will be necessary when applying (2) to ellipsis in the next subsection.

focus semantic value of  $\Phi$  — the subset condition.

The exchange in (4) meets this condition. The ordinary meaning of A and the focus value of  $\Phi$  are both the set of propositions of the form *x likes Mary*:<sup>6</sup>

- (4) A: Who likes Mary?                      B: JOHN<sub>F</sub> likes Mary.  
 $\llbracket A \rrbracket = \{ \text{like}'(m)(x) \mid x \in D_e \}$                        $\llbracket \Phi \rrbracket = \text{like}'(m)(j)$   
 $F(\Phi) = \{ \text{like}'(m)(x) \mid x \in D_e \}$                        $\llbracket A \rrbracket \subseteq F(\Phi)$

The next subsection applies the constraint on focus interpretation in (2) to ellipsis and shows how the contrast condition accounts for the ungrammaticality of ellipsis in tautologous conditionals.

## 2.2 Rooth (1992b): applying Rooth (1992a) to ellipsis

Following Rooth (1992b), ellipsis has widely been hypothesised to be subject to similar constraints as focus (cf. Tancredi 1992). However, Rooth (1992a) does not provide any empirical motivation for including the contrast condition in his constraint on focus interpretation in (2). Rather, Rooth (1992a: 90) acts out of a methodological concern to constrain the theory as much as possible while retaining generality.

Perhaps for this reason, many researchers (e.g. Heim 1997; Fox 1999; Fox 2000: 85, ex. 16; Takahashi & Fox 2005) have considered only the first half of (i) from (2). That is, they pursue the consequences of subjecting ellipsis to the focus membership condition, along the lines of (5):

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<sup>6</sup>Clause (ii) of (2) requires  $\llbracket A \rrbracket \subseteq F(\Phi)$  rather than  $\llbracket A \rrbracket = F(\Phi)$  in view of domain restrictions on *wh*-words, as for *who* to humans. With respect to (4), more properly  $F(\Phi) = \{ \text{like}'(m)(x) \mid x \in D_e \ \& \ \text{human}'(x) \}$ .  $\llbracket A \rrbracket$  would then be a proper subset of, rather than equal to,  $F(\Phi)$ , which by definition is calculated without restriction.

(5) *Ellipsis parallelism as focus membership*

For  $\varepsilon$  to be elided,  $\varepsilon$  must be inside a phrase  $E$  that has an antecedent  $A$  such that:

$$\llbracket A \rrbracket \in F(E)$$

This condition, often termed the parallelism condition on ellipsis licensing, requires that a phrase  $E$  containing an elided constituent  $\varepsilon$  have an antecedent  $A$ ; and that the ordinary semantic value of  $A$  be a member of the focus semantic value of  $E$ .<sup>7</sup>

Rooth (1992b: exx. 22, 23; 32) himself seems to set the contrast condition aside in showing that the focus membership condition makes a ‘doubly’ correct prediction that ellipsis is licensed in the simple case of (6):

(6) John left, and Bill did, too.

For one, we can take  $A$  and  $E$  to be the main clauses of each conjunct. Assuming focus on  $BILL_F$ , focus membership is satisfied as in (7). Informally, John leaving is a member of the focus alternatives to Bill leaving — someone left:

(7) John left, and  $BILL_F$  did leave, too.       $\varepsilon = \text{leave}$   
     $E = BILL_F \text{ left}$        $\llbracket E \rrbracket = \text{leave}'(b)$        $F(E) = \{ \text{leave}'(x) \mid x \in D_e \}$   
     $A = \text{John left}$        $\llbracket A \rrbracket = \text{leave}'(j)$        $\llbracket A \rrbracket \in F(E)$

In detail, the elided constituent  $\varepsilon$  is the predicate *leave*. Parallelism is evaluated at the clause level, setting  $E$  to  $BILL_F \text{ left}$ . Since  $E$  contains a focused constituent, its focus value is the set of propositions where something leaves. Setting  $A$  to *John left*, focus membership is satisfied, since the proposition that John left is one of the propositions that something left.

In addition to taking  $A$  and  $E$  to be the main clauses, focus membership can be satisfied just as well by taking  $A$  and  $E$  to be the VP of each conjunct, as in (8). Informally, leaving is a member of the focus value of leaving — the singleton set containing leaving:

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<sup>7</sup>Clause (ii) of (2) is also omitted where discussion is limited to non-set-denoting antecedents.

- (8) John left, and Bill did *leave*, too.       $\varepsilon = \text{left}$   
       E = left                       $\llbracket E \rrbracket = \text{leave}'$                        $F(E) = \{ \text{leave}' \}$   
       A = left                       $\llbracket A \rrbracket = \text{leave}'$                        $\llbracket A \rrbracket \in F(E)$

The elided constituent  $\varepsilon$  is the predicate *leave*. This time parallelism is evaluated at the level of the elided material, setting E also to *leave*. Since E does not contain any focused constituents, its focus value is the singleton set containing its ordinary value. Setting A to *leave*, focus membership is satisfied trivially.

Thus the focus membership condition in (5) makes a ‘doubly’ correct prediction with respect to ellipsis in simple cases like (6). Focus membership can be satisfied substantively (7), where *leave'*(j) is one among the many members of the set  $\{ \text{leave}'(x) \mid x \in D_e \}$ ; or vacuously (8), where *leave'* is a member — in fact, the only member — of the degenerate singleton set  $\{ \text{leave}' \}$ .

However, focus membership alone makes an incorrect prediction with respect to tautologous conditionals. Taking F-marking on *is* to introduce polar focus alternatives, the focus membership condition from (5) is satisfied for (1b) as in (9):

- (9) If John<sub>1</sub> is wrong, then he<sub>1</sub> is<sub>F</sub> ~~wrong~~.       $\varepsilon = \text{wrong}$   
       E = he<sub>1</sub> is<sub>F</sub> wrong                                      A = John<sub>1</sub> is wrong  
        $\llbracket E \rrbracket = \text{wrong}'(j)$                                        $\llbracket A \rrbracket = \text{wrong}'(j)$   
        $F(E) = \{ \text{wrong}'(j), \text{not-wrong}'(j) \}$                        $\llbracket A \rrbracket \in F(E)$

The elided constituent  $\varepsilon$  is the predicate *wrong*, and parallelism is evaluated at the clause level, setting E to *he is<sub>F</sub> wrong*. Focus on *is<sub>F</sub>* introduces polar focus alternatives for E: *John is wrong*, *John is not wrong*. The antecedent *John is wrong* is indeed one of the members of this set. So the focus membership condition is satisfied, leading to an incorrect prediction of grammaticality.

Correct predictions follow from implementing the spirit of Rooth (1992b) by carrying over Rooth’s (1992a) focus constraint from (2) to ellipsis in its entirety. In addition to focus

membership, the parallelism condition on ellipsis in (10) requires contrast:<sup>8</sup>

(10) *Ellipsis parallelism as focus membership plus contrast*

For  $\epsilon$  to be elided,  $\epsilon$  must be inside a phrase E that has an antecedent A such that either:

- i.  $\llbracket A \rrbracket \in F(E)$  and  $\llbracket A \rrbracket \neq \llbracket E \rrbracket$ ; or
- ii.  $\llbracket A \rrbracket \subseteq F(E)$

Strengthening focus membership with contrast disallows  $\llbracket A \rrbracket$  from being the trivial member of a singleton  $F(E)$ ; i.e., the same as the ordinary meaning of  $\llbracket E \rrbracket$ . In other words, it is not sufficient for  $\llbracket A \rrbracket$  to be an alternative to  $\llbracket E \rrbracket$ ; rather,  $\llbracket A \rrbracket$  must be a proper alternative to  $\llbracket E \rrbracket$ . With respect to the simple case of ellipsis in (6), focus membership can no longer be satisfied vacuously on degenerate singletons, as in (8), due to contrast failure: *leave*' means *leave*'. The overall prediction that ellipsis is good in (6) still stands, since focus membership can be satisfied substantively, as in (7), while also satisfying contrast: John leaving is different from Bill leaving.

But for tautologous conditionals, the prediction turns from incorrect, as in (9), to correct in (11). Applying (10) to (1b), the sentence is correctly predicted to be bad, since it fails the

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<sup>8</sup>(10) also takes account of question antecedents by retaining clause (ii).

contrast condition:<sup>9, 10</sup>

- (11) \* If John<sub>1</sub> is wrong, then he<sub>1</sub> is<sub>F</sub> wrong.     ε = wrong  
E = he<sub>1</sub> is<sub>F</sub> wrong     A = John<sub>1</sub> is wrong  
[[E]] = wrong'(j)     [[A]] = wrong'(j)  
F(E) = { wrong'(j), not-wrong'(j) }     [[A]] ∈ F(E), **but** [[A]] = [[E]]

Ellipsis in (11) is subject to clause (i) of (10), since the antecedent *John is wrong* in the *if*-clause is declarative. The elided constituent ε is *wrong*, which is contained in E, *he is<sub>F</sub> wrong*. Focus on *is<sub>F</sub>* introduces polar focus alternatives for E. As before, the antecedent A, *John is wrong*, is indeed a member of this set, satisfying focus membership. But the ordinary meanings of A and E are exactly the same. Thus (11) is ruled out as a failure of ellipsis licensing — in particular, for failing the contrast condition.

In sum, an ellipsis parallelism theory comprising focus membership and contrast correctly rules out ellipsis in tautologous conditionals. It is worth emphasising that ellipsis is ruled out in (1b) solely by the contrast condition; where Rooth (1992a: 90) was acting out of

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<sup>9</sup>F-marking is placed on *is* as the most natural way to try and pronounce (11). This meets the focus membership condition, isolating contrast failure as the reason for ungrammaticality. However, whatever F-marking is assigned in the consequent of (11) — on any head, branching node, or nowhere at all — contrast will fail and ellipsis will not be licensed.

The exception is F-marking on *he*, which makes (11) good, but does so by making the pronoun disjoint in reference from *John*, changing the meaning of the sentence to be contingent, while also satisfying contrast. Contrastive focus on *he* referring to *John* is not supported when (1b) is uttered out of the blue. Any context that supports such contrastive focus will also supply a discourse antecedent for the ellipsis that satisfies the contrast condition. See section 4.1 for more on discourse antecedents.

<sup>10</sup>Setting A and E to be any larger will fail. For related discussion, see Heim (1997: 210).

methodological concern with (2) for focus, the contrast condition as part of (10) has empirical bite in ellipsis licensing with respect to tautologous conditionals. The next section introduces an alternative theory, before the two are compared against further data in section 4.

### 3 L-triviality

The theory developed in the previous section attributed the ungrammaticality of ellipsis in tautologous conditionals to a problem with ellipsis. This section considers an alternative theory that attributes the problem to tautology.

Gajewski (2002, 2009) aims to reconcile explanations of ungrammaticality in terms of tautology and contradiction with the fact that we can say trivial things. The first subsection introduces his hypothesis that triviality is ungrammatical only at a more abstract, logical level. The second shows how his theory can be extended to account for the ungrammaticality of ellipsis in tautologous conditionals by enforcing ellipsis identity at this abstract level.

#### 3.1 Triviality and ungrammaticality

Trivial truth conditions are regularly invoked to explain ungrammaticality.<sup>11</sup> For example, Barwise & Cooper (1981) explain the definiteness effect in *there*-existential sentences in terms of tautology (12). Weak determiners like *some* (a) are acceptable in quantificational *there*-associates, whereas strong determiners like *every* (b) are not:

- (12) a. There are some curious students.  
b. \* There is every curious student.

Suppose that *there* denotes the domain of individuals  $D_e$ , and *there*-associates are predicates

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<sup>11</sup>For extensive references, see Gajewski (2009); Chierchia (2013: 43-54); and Abrusan (2014: ch.6).



that apply to *there*. Then, as in (13), *there*-existential sentences with weak quantifiers are contingent (a); whereas those with strong quantifiers are tautologous (b):

(13) a. (12a) is contingent on the existence of members of the set denoted by *P*:

[[some]]([[P]])([[there]]) is true iff  $P \cap D_e \neq \emptyset$

So when  $P \neq \emptyset$ , [[(12a)]] = True; but when  $P = \emptyset$ , [[(12a)]] = False

b. (12b) is a tautology, true regardless of the set denoted by *P*:

[[every]]([[P]])([[there]]) is true iff  $P \subseteq D_e$

So for any *P*, [[every]]([[P]])( $D_e$ ) = True

Thus Barwise & Cooper (1981) rule out strong determiners in *there*-existentials as tautologous. Yet, to Gajewski's (2009: ex. 27) great concern, we can say trivial things. The grammaticality of tautologous and contradictory sentences like those in (14) undermines direct appeals to tautology and contradiction as an explanation for ungrammaticality:

(14) a. It is raining and it isn't raining.

b. If Fred is wrong, then he is wrong.

c. Figure A is hexagonal or Figure A is not hexagonal.

d. Every square is a square.

Gajewski's (2009) theory of logical triviality provides a solution to this problem. He hypothesises that triviality is ungrammatical only at a more abstract, logical level. While the examples in (14) are perfectly acceptable, a formally identifiable subset of trivial sentences are logically trivial, hence ungrammatical. As laid out in (15), Gajewski (2009: exx. 41, 42, 30) defines L(ogical)-triviality as in (a), and relates it to ungrammaticality as in (b). The definition of L-triviality refers to a sentence's logical skeleton (LS), defined in (c). The intuition behind LSs is that the grammar treats all occurrences of non-logical constants as independent:

(15) *Gajewski's (2009) theory of L-triviality*

- a. A sentence *S* is L-trivial iff *S*'s logical skeleton receives the truth-value 1 (or 0) in all interpretations.
- b. A sentence is ungrammatical if its Logical Form contains an L-trivial constituent sentence.
- c. To obtain the logical skeleton (LS) of an LF  $\alpha$ :
  - i. Identify the maximal constituents of  $\alpha$  containing no logical items;
  - ii. Replace each such constituent with a fresh constant of the same type.

Take, for example, the conditional tautology in (16). In constructing the LS, the logical item *if* is retained, while each independent occurrence of the non-logical constant *rain* is replaced by an independent arbitrary constant, *P* and *Q*:

(16) If it rains, it rains.  
[ if P Q ]

The LS in (16) is not trivial. It is shared by other perfectly contingent sentences, e.g. *If it rains, it pours*. Therefore (16) is grammatical: although trivial, it is not L-trivial.

Compare the *there*-existential sentences from (12), which receive the LSs in (17). Per Barwise & Cooper's (1981) analysis in (13), (17a) is contingent on the choice of *P*, whereas (17b) is true for any *P*. Since its LS in (17b) is trivial, (12b) is L-trivial, hence ungrammatical:<sup>12</sup>

- (17) a. there are some P  
b. ✗ there is every P

The next subsection extends Gajewski's (2009) theory in (15) to ellipsis.

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<sup>12</sup>Reserving \* for ungrammaticality, trivial LSs are marked ✗.

### 3.2 Extending Gajewski (2009) to ellipsis

Gajewski's theory of L-triviality reconciles the grammaticality of tautologous and contradictory sentences with explanations of ungrammaticality in terms of trivial truth conditions. Gajewski's theory can be extended to account the ungrammaticality of ellipsis in tautologous conditionals by enforcing ellipsis identity at the level of logical skeletons. We can implement this by making the additional assumptions about LSs in (18):

(18) *Extensions to Gajewski's (2009) theory of L-triviality*

- a. At LS, elided terms must have the same constant as their antecedents.
- b. Coindexed terms are replaced by the same constant at LS.

The assumption in (18a) requires the non-logical constants of an elided constituent to be identical at LS to the non-logical constants of its antecedent. The further assumption in (18b) resolves a point left open by Gajewski.<sup>13</sup>

Gajewski's theory of L-triviality in (15), as extended by the assumptions in (18), applies to the elliptical tautologous conditional from (1b) as in (19). Since it has a trivial LS, (1b) is L-trivial, hence correctly predicted to be ungrammatical:

(19) \* If John<sub>1</sub> is wrong, then he<sub>1</sub> is ~~wrong~~.  
X [ if  $\alpha$  is P then  $\alpha$  is P ]

In constructing the LS for (19) the logical items *if ... then* and the copulas are retained. The non-logical items *John* and *wrong* in the protasis of the conditional, and *he* and *wrong* in the apodosis, are subject to replacement by arbitrary constants. However, by (18a) the elided *wrong* must be identical to its antecedent at LS; so both occurrences of *wrong* are replaced by the same constant *P*. Similarly, by (18b) the coreferential terms *John* and *he* are

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<sup>13</sup>Assumption (18b) would reduce to (18a) on a theory that treats anaphora and ellipsis in the same way, e.g. Hardt (1993), Elbourne (2001).

dependent; so both are replaced by the same constant  $\alpha$ . The resulting LS is trivial. This renders the sentence is L-trivial, hence ungrammatical.

Compare (20), which shows how the fully pronounced tautologous conditional from (1a) is not L-trivial. With no ellipsis, no identity is enforced between the two occurrences of *wrong*, so each is replaced by an independent arbitrary constant. As in (16) above, the resulting LS is contingent:

(20) If John<sub>1</sub> is wrong, then he<sub>1</sub> is wrong.  
[ if  $\alpha$  is P then  $\alpha$  is Q ]

Thus (1a) is correctly predicted to be grammatical; it is trivial, but not L-trivial.

In sum, extending Gajewski's (2009) theory to enforce ellipsis identity over LSs rules out (1b) as L-trivial. The next section introduces further data to adjudicate between this extension of L-triviality and the ellipsis parallelism theory from section 2.

## 4 Further data

The two theories developed in the previous sections are equally capable of accounting for the ungrammaticality of ellipsis in tautologous conditionals. Each overcomes in its own way the surprising fact that complete identity fails to license ellipsis. On the first theory, ellipsis fails the contrast component of ellipsis parallelism. On the second, identity at the level of logical skeletons renders the elliptical examples logically trivial, hence ungrammatical.

This section compares the two theories against further data. The discussion begins in section 4.1 with discourse antecedents for ellipsis in tautologous conditionals. Both theories can account for the grammaticality of ellipsis when the antecedent is sourced from a preceding question; but ellipsis parallelism faces a challenge from ellipsis continuing to be grammatical with extra-sentential declarative antecedents. Discourse antecedents aside, ellipsis parallelism fares better than extended L-triviality overall. This is especially so for double ellipsis in section 4.2. Ellipsis parallelism can also more naturally handle the

goodness of ellipsis in trivial sentences with negation, in terms of polarity focus (section 4.3), as well as non-trivial sentences (section 4.4), whose contingency places them beyond the purview of L-triviality. Discussion of contrasts involving intensionality follows in section 5.

## 4.1 Discourse antecedents

The foregoing has considered the status of ellipsis in tautologous conditionals in isolation, with (1b) uttered out of the blue. This subsection considers elliptical tautologous conditionals as embedded in a discourse, where the antecedent for ellipsis can be sourced from a preceding sentence rather than the *if*-clause. When the antecedent is located in a preceding question, both ellipsis parallelism and extended L-triviality make good predictions; but when the antecedent is in a preceding declarative clause, ellipsis parallelism makes an errant, if potentially fixable, prediction.

Both theories correctly predict the exchange in (21) to be good, despite speaker B's response in (21) being the same as (1b):

(21) A: Is John<sub>1</sub> wrong?      B: If John<sub>1</sub> is wrong, then he<sub>1</sub> is ~~wrong~~.

On both theories, the problem with ellipsis inside the tautologous conditional is circumvented by sourcing the antecedent from the polar question in A rather than the *if*-clause in B. We can be sure that the antecedent is indeed the question in (21) based on the minimally different exchange in (22). The only possible interpretation for the ellipsis site in B is *silly*, sourced from the question in A; a tautologous interpretation with *wrong* sourced from the *if*-clause is not available:

(22) A: Is Fred<sub>2</sub> silly?      B: If Fred<sub>2</sub> is wrong, then he<sub>2</sub> is *silly* / \*~~wrong~~.

Ellipsis parallelism treats (21) as in (23). The question antecedent invokes clause (ii) of the parallelism condition from (10), circumventing the contrast condition:

$$\begin{array}{ll}
 (23) \ E = \text{he}_1 \text{ is}_F \text{ wrong} & A = \text{Is John}_1 \text{ wrong?} \\
 \llbracket E \rrbracket = \text{wrong}'(j) & \llbracket A \rrbracket = \{ \text{wrong}'(j), \text{not-wrong}'(j) \} \\
 F(E) = \{ \text{wrong}'(j), \text{not-wrong}'(j) \} & \llbracket A \rrbracket \subseteq F(E)
 \end{array}$$

E and its focus value are unchanged from above. Ellipsis cannot take the *if*-clause as antecedent, since this would result in a contrast failure, as for (1b) in (11). Instead, the polar question is taken as antecedent. With a question as antecedent, ellipsis is subject to clause (ii) of (10) — the subset condition. Following Hamblin (1973), the polar question denotes the set of its possible answers: *John is wrong*, *John is not wrong*. This set is the same as the focus value of E. So the subset condition is met and ellipsis is licensed without the issue of contrast arising.

Extended L-triviality also predicts the exchange in (21) to be good. Sourcing the antecedent for ellipsis from outside the sentence circumvents L-triviality as in (24):

$$(24) \ A: \ \text{Is John}_1 \text{ wrong?} \quad B: \ \text{If John}_1 \text{ is wrong, then he}_1 \text{ is } \underline{\text{wrong}}. \\
 \quad [ \text{is } \alpha \quad P \quad ] \quad \quad [ \text{if } \alpha \quad \text{is } Q \quad \text{then } \alpha \quad \text{is } P \quad ]$$

Extended L-triviality enforces ellipsis identity at the level of logical skeletons. To meet this restriction, the ellipsis in B and its antecedent in A are replaced with the same constant *P* in the LSs in (24). The occurrence of *wrong* in the *if*-clause is not involved in the ellipsis relationship, so is replaced with the independent *Q*. The LS for B is then not trivial, but shared by perfectly contingent sentences, e.g. *If John is lucky, then he is happy*. Thus (24) is not L-trivial, and so is grammatical.

Both theories continue to make good predictions on questions beyond matrix polar questions. When the discourse antecedent is an embedded polar question, ellipsis is good in (25); while ellipsis is bad in (26), when the antecedent is a *wh*-question:

$$(25) \ A: \ \text{I wonder whether John}_1 \text{ is wrong.} \\
 \quad B: \ \text{If John}_1 \text{ is wrong, then he}_1 \text{ is } \underline{\text{wrong}}.$$

(26) A: What is John<sub>1</sub> (like)?      B: \*If John<sub>1</sub> is wrong, then he<sub>1</sub> is ~~wrong~~.

According to ellipsis parallelism, ellipsis is licensed for (25) in exactly the same way as for (21) in (23), assuming that embedded polar questions, like matrix questions, denote the set of their possible answers (Hamblin 1973). In (26), on the other hand, ellipsis is not licensed, since the subset condition is not met. The antecedent *wh*-question denotes the set of propositions where a property is applied to John, i.e.  $\{ P(j) \mid P \in D_{\langle e, st \rangle} \}$ , which is not a subset of  $F(E) = \{ \text{wrong}'(j), \text{not-wrong}'(j) \}$ .

Extended L-triviality also makes the right cut between (25) and (26). In order to circumvent L-triviality, ellipsis identity needs to be established with an occurrence of *wrong* outside the tautologous conditional. Such an extra-sentential occurrence of *wrong* is provided by A in (25), but not in (26).

In sum, both theories correctly predict that tautologous conditionals can contain ellipsis when the antecedent comes from a polar question, but not a *wh*-question. Polar questions circumvent the problem with sourcing the antecedent from the *if*-clause — failure to contrast and L-triviality, respectively — whereas *wh*-questions do not provide the necessary antecedent material.

However, predictions diverge when the discourse antecedent for ellipsis in a tautologous conditional is a declarative clause, as in (27):

(27) A: John<sub>1</sub> is wrong.      B: ? If John<sub>1</sub> is wrong, then he<sub>1</sub> is ~~wrong~~.

Ellipsis parallelism predicts the exchange in (27) to be bad. With a declarative antecedent, contrast failure is predicted just as for (1b) in (11), regardless of whether the antecedent is sourced from inside or outside the tautologous conditional. For extended L-triviality, on the other hand, taking the extra-sentential occurrence of *wrong* as antecedent should be enough to circumvent L-triviality, just as for (21) in (24), predicting the exchange in (27) to be good.

Stepping beyond tautologous conditionals, while B's response in (27) is perhaps mildly degraded, the exchange in (28) is perfectly good:

(28) A: John is wrong.      B: Yes, he is<sub>F</sub> wrong.

The grammaticality of ellipsis in utterances of agreement, such as B's in (28), presents a major problem for incorporating Rooth's (1992a) contrast condition into ellipsis parallelism, since  $\llbracket A \rrbracket = \llbracket E \rrbracket$ .

However, the problem posed by (28) only stands if we subject the ellipsis to clause (i) of the parallelism condition from (10), taking as antecedent the declarative sentence uttered by speaker A. If instead we can shift to clause (ii) of (10), ellipsis will be licensed successfully, as it was in (23). One way to effect a shift to clause (ii) would be to take speaker A to be making a discourse move that proffers alternatives, establishing a Question-Under-Discussion (QUD) (Roberts 1996) as to whether John is wrong. Taking this QUD as antecedent would move the licensing calculations to clause (ii) of the parallelism condition, thereby defusing the contrast condition for speaker B's response as in (29):

(29) E = he <sub>1</sub> is <sub>F</sub> wrong	A = John <sub>1</sub> is wrong
$\llbracket E \rrbracket = \text{wrong}'(j)$	$\text{QUD}(A) = \{ \text{wrong}'(j), \text{not-wrong}'(j) \}$
$F(E) = \{ \text{wrong}'(j), \text{not-wrong}'(j) \}$	$\text{QUD}(A) \subseteq F(E)$

However, principled constraints, motivated independently of ellipsis licensing, would be necessary, outlining when a declarative clause can and cannot proffer a QUD.<sup>14</sup>

Overall, both ellipsis parallelism and extended L-triviality make good predictions when the antecedent for ellipsis in a tautologous conditional is located in a preceding question.

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<sup>14</sup>Another way to invoke clause (ii) of (10) would be to take speaker A's utterance as itself being relative to a previously established QUD as to whether John is wrong. This QUD, established prior to rather than by A's utterance, could then serve as the antecedent for ellipsis, along similar lines to (29). However, it would remain to account for why such a QUD can be conjured for the exchanges in (27) or (28), but not for the out of the blue utterance of a tautologous conditional in (1b). On this last point, see note 16.



Contrast and L-triviality are both circumvented with polar questions, and not by *wh*-questions. Ellipsis parallelism makes a suspect prediction when the antecedent is found in a preceding declarative clause, which L-triviality does not. This prediction becomes clearly incorrect beyond tautologous conditionals in light of utterances of agreement. Still, granting that declaratives can proffer QUD antecedents, ellipsis parallelism has a potential fix. And besides, the challenges faced by extended L-triviality are more serious, beginning with double ellipsis in the next subsection.

## 4.2 Double ellipsis

The predictions of ellipsis parallelism and extended L-triviality come apart in relation to the sentence in (30) with ellipsis in both clauses of the conditional at once:

(30) If he<sub>1</sub> is < >, he<sub>1</sub> is < >.

Though it need not, (30) can have a trivial interpretation where both ellipses are resolved via the same antecedent, as in (31):<sup>15</sup>

(31) A: Is John<sub>1</sub> wrong?      B: If he<sub>1</sub> is ~~wrong~~, he<sub>1</sub> is ~~wrong~~.

Ellipsis parallelism correctly predicts the exchange in (31) to be good. Each ellipsis in B is separately and successfully licensed by the subset condition in just the same way as for (21) in (23) in the previous subsection.

Extended L-triviality, on the other hand, incorrectly predicts the exchange in (31) to be bad, as in (32):

(32) A: Is John<sub>1</sub> wrong?      B: If he<sub>1</sub> is ~~wrong~~, then he<sub>1</sub> is ~~wrong~~.  
           [ is α    P        ]      ✗ [ if α is P        then α is P        ]

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<sup>15</sup>See Clifton Jr. & Frazier (2010: 291) for some speculation as to what makes double ellipsis in conditionals so easy to process.

Both ellipses are dependent on the same antecedent, so both will be replaced by the same arbitrary constant at LS, here *P*. This results in a trivial LS, rendering B L-trivial and incorrectly predicting it to be ungrammatical.

There does not seem to be a principled way to correct the prediction L-triviality makes for (31). As such, the goodness of double ellipsis in tautologous conditionals strongly favours ellipsis parallelism.<sup>16</sup>

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<sup>16</sup>There is more to say about the status of double ellipsis in (30) as opposed to single ellipsis in (1b) (*\*If John is wrong, then he is*). While (30) needs to be provided with an antecedent before it can be interpreted, as in (31), it can also be judged acceptable in isolation. The acceptability of (30) out of the blue suggests a willingness to assume that a discourse could readily be provided to resolve the ellipses. We do not seem to be willing to make the same allowances for (1b), however, which is judged unacceptable in isolation despite that fact that there are discourses where it is good — as the previous subsection showed with (21), (25) and perhaps (27). That is, whereas we tolerate (30) without an antecedent being available, it seems that the presence of potential but ultimately unusable antecedent material in the *if*-clause in (1b) precludes such deference to discourse.

The data in (i) replicate the pattern among (30), (21) and (1b) for focus:

- (i) a. Bill is AMERICAN<sub>F</sub>.
- b. John is Canadian. Bill is AMERICAN<sub>F</sub>.
- c. ?? John is American. Bill is AMERICAN<sub>F</sub>.

(a) behaves like double ellipsis in (30): there is no discourse to resolve the antecedent of the focus/ellipsis, but we are willing to assume that one could readily be provided, and judge the sentence acceptable. (b) is like single ellipsis in (21): the first clause provides a legitimate antecedent for the focus/ellipsis in the second. Finally, (c) is like (1b): there is a potential but ultimately unusable, non-contrasting antecedent for the focus/ellipsis, and the sentence

### 4.3 Other trivial sentences

This subsection steps further beyond tautologous conditionals to consider other trivial sentences. Both ellipsis parallelism and extended L-triviality correctly rule out ellipsis in some other tautologies, but ellipsis parallelism fares better on sentences involving negation.

Both theories successfully extend to the tautology in (33). As with the tautologous conditional from (1), (a) is trivial but perfectly grammatical, whereas (b) with ellipsis is ungrammatical. According to ellipsis parallelism, there is no available properly contrasting antecedent to license the ellipsis; while according to extended L-triviality, the (b) is L-trivial for having the trivial LS in (c):

- (33) a. Boys will be boys.  
b. \* Boys will be ~~boys~~.  
c. ✗ [P will be P]

Likewise in (34), the perfectly grammatical tautologous free relative in (a) does not admit ellipsis in (b) (cf. Horn 1981: 326):<sup>17, 18</sup>

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is judged unacceptable.

Why potential but ultimately failing antecedents should derail deference to discourse to the point of unacceptability will have to remain a question for future research. Still, the similar behaviour of focus and ellipsis in this regard sits well with ellipsis parallelism's application of Rooth's (1992a) condition on focus interpretation to ellipsis, per Rooth (1992b).

<sup>17</sup>Recalling note 2, the best available but bizarre parse for (34b) takes *does* to be 'main verb' *do*. Recall also note 3 regarding the stonewalling meaning.

<sup>18</sup>We return to tautologous free relatives like (34) in view of intensionality in section 5, including appending a *because*-clause (57b).

- (34) a. John<sub>j</sub> eats what he<sub>j</sub> eats.  
 b. \* John<sub>j</sub> eats what he<sub>j</sub> does eat.

Ellipsis parallelism rules out ellipsis in (34b) via the contrast condition, as in (35). Regardless of how the free relative DP takes scope to resolve antecedent containment,<sup>19</sup> and regardless of the placement of F-marking, ellipsis is ruled out as a contrast failure, since A and E have the same meaning:

- (35) \* John<sub>1</sub> eats what he<sub>1</sub> does eat.  
 [DP what<sub>3</sub> he<sub>1</sub> does eat t<sub>3</sub>] 2 John<sub>1</sub> eats t<sub>2</sub>.  
 E = 3 he<sub>1</sub> does eat t<sub>3</sub>    A = 2 John<sub>1</sub> eats t<sub>2</sub>  
 [[A]] = [[E]] = λx. eats'(x)(j)

Extended L-triviality also makes the right cut in (34). The fully pronounced (a) has the non-trivial LS in (36); whereas the elliptical (b) is ruled out for its trivial LS in (37):

- (36) John<sub>1</sub> eats what he<sub>1</sub> eats.  
 [DP what<sub>k</sub> he<sub>1</sub> eats t<sub>k</sub>]<sub>i</sub> John<sub>1</sub> eats t<sub>i</sub>.  
 [ what α Q α Ps ]
- (37) \* John<sub>1</sub> eats what he<sub>1</sub> does eat.  
 [DP what<sub>k</sub> he<sub>1</sub> does eat t<sub>k</sub>]<sub>i</sub> John<sub>1</sub> eats t<sub>i</sub>.  
 ✗ [ what α does P α Ps ]

---

<sup>19</sup>To avoid antecedent containment, A needs to exclude the elliptical free relative DP. For parallelism with A, E needs to exclude *what*. And to avoid syntactic overlap between A and E (Rooth 1992a), the free relative DP needs to move over *John*.

However, the predictions of the two theories diverge for ellipsis in other trivial sentences involving negation. For example, the contradictory conjunction in (38) and the tautologous disjunction in (39) are good, whether fully pronounced (a) or with ellipsis (b):<sup>20</sup>

- (38) a. John<sub>1</sub> is wrong and he<sub>1</sub> isn't wrong.  
 b. John<sub>1</sub> is wrong and he<sub>1</sub> isn't ~~wrong~~.
- (39) a. Either John<sub>1</sub> is wrong, or he<sub>1</sub> isn't wrong.  
 b. Either John<sub>1</sub> is wrong, or he<sub>1</sub> isn't ~~wrong~~.

Ellipsis parallelism correctly predicts both (38) and (39) to be grammatical as in (40). The opposition of a positive antecedent and a negative clause containing ellipsis satisfies the contrast condition:

- |   |                                |
|---|--------------------------------|
| (40) E = he <sub>1</sub> isn't <sub>F</sub> wrong | A = John <sub>1</sub> is wrong |
| [[E]] = not-wrong'(j)                             | [[A]] = wrong'(j)              |
| F(E) = { wrong'(j), not-wrong'(j) }               | [[A]] ∈ F(E), [[A]] ≠ [[E]]    |

The ellipses in (38) and (39) are subject to clause (i) of (10), since the antecedent *John is wrong* in the first conjunct is declarative. The elided constituent *wrong* is contained in the

<sup>20</sup>Examples of the form in (38b) are often given in discussions of the ungrammaticality of triviality (i), as well as in real life (ii), including with the polarity reversed:

- (i) a. It rains and it doesn't. Chierchia (2013: 52)  
 b. It is raining and it isn't. Mayr (2019: 273, ex. 161a)  
 c. He's an idiot and he isn't. Fox & Hackl (2006: 571, ex. 84b)
- (ii) a. It's my own fault and it's not, too.

Hemingway, *The Sun Also Rises*, Scribner 2003 p.54

- b. In this current dark reality, sport doesn't matter but it does.

<http://www.bbc.com/sport/51902553>. Last accessed 12 July 2020.

clause E *he is not wrong*. Focus on *not* introduces polar focus alternatives for E: *John is wrong*, *John is not wrong*. The antecedent *John is wrong* is indeed a member of this set, so the focus membership condition is satisfied, similar to (1b) in (11). But, unlike with (1b), the ordinary meanings of A and E are distinct: A is positive, whereas E contains sentential negation. So the contrast condition is satisfied, and (38) and (39) are correctly predicted to be grammatical.

Extended L-triviality, on the other hand, incorrectly predicts ellipsis to be ungrammatical in all trivialities. The elliptical (b) versions of (38) and (39) are assigned the trivial LSs in (41), predicting them to be L-trivial and ungrammatical:

- (41) a. [ $\alpha$  is P and  $\alpha$  is not P]  
b. [Either  $\alpha$  is P or  $\alpha$  is not P]

One way for extended L-triviality to remedy this bad prediction would be to claim that (38) and (39) are not really trivialities. In both cases, the discourse move of uttering them is a constructive one that progresses the conversation. Intuitively, the contradictory conjunction in (38) says that John is wrong in one sense but not in another. Formally, Alxatib et al. (2013) treat borderline contradictions like *John is and isn't tall* using fuzzy logic to allow for each conjunct to be half true, hence the whole sentence to be true. Meanwhile the tautologous disjunction in (39) partitions possible ways the world could be, raising the issue of which is the case: is John wrong or isn't he? If (38) and (39) were rendered non-trivial along these lines, then they would not be L-trivial, predicting ellipsis to be fine. That said, this treatment of apparent trivialities as non-trivial would have to be prevented from extending to (1) for the theory to make the right cut regarding ellipsis. This might be possible in light of the comments on the meaning of (1) in the introduction. Uttering a tautologous conditional is a negative discourse move, shutting down a topic of conversation and ruling out further discussion; the message being that John is wrong — deal with it!

In sum, while ellipsis parallelism handles the status of ellipsis in other trivialities very straightforwardly, extended L-triviality runs into difficulties on trivialities involving negation. In order to make the right cut regarding the status of ellipsis in trivialities, it would need to divide them into those that are truly trivial (tautologous conditionals) versus those that are only apparently so (tautologous disjunctions and contradictory conjunctions). The next subsection considers contrast effects in non-trivial sentences, where ellipsis parallelism has broader potential than extended L-triviality.

#### 4.4 Non-trivial sentences

The previous subsection showed how extended L-triviality struggles on trivial sentences involving negation. This subsection considers two kinds of non-trivial sentences, where we might reasonably expect extended L-triviality's purview to be further reduced. Extended L-triviality may be able to account for the ungrammaticality of ellipsis in self-conjoined sentences expressing iteration, if it can be made sensitive to redundancy in addition to triviality; but MaxElide effects (Schuyler 2001; Merchant 2008b) are more surely beyond its scope. Ellipsis parallelism, on the other hand, naturally rules out ellipsis in self-conjunction as contrast failure, and has the potential to extend to so-called (Griffiths 2019) MaxElide effects.

First, ellipsis is impossible in self-conjoined sentences expressing iteration (42). Repetition must be whole, whether of sentences (a) or verb phrases (c). Ellipsis in the corresponding (b) and (d) is ungrammatical:

- (42) a. They talked and they talked and they talked.  
b. \* They talked and they did ~~talk~~ and they did ~~talk~~.  
c. They talked and talked and talked.  
d. \* They talked and did ~~talk~~ and did ~~talk~~.

Ellipsis parallelism naturally handles the pattern in (42): ellipsis is ruled out by the contrast condition, since there is no available antecedent with a meaning distinct from the clause containing ellipsis.

Extended L-triviality, on the other hand, cannot immediately handle (42). Illustrating on (b), its LS in (43) is not trivial:

(43)  $[\alpha P \text{ and } \alpha P \text{ and } \alpha P]$

This LS is contingent on whether  $\alpha P$ . Still, while not trivial, (43) is certainly redundant: there are multiple conjuncts where truth-conditionally only one would do.

To make the correct prediction for (42b), we can adopt a revision to L-triviality independently motivated by Gajewski (2009: exx. 56-58) for (44). Conjoining a problematic quantifier (*every*) with an unproblematic one (*no*) is ungrammatical in a definiteness effect sentence like (a); this despite (a) having the LS in (b), which is contingent on the existence of members of the set denoted by Q (cf. 13):

(44) a. \* There is [every curious student and no boring professor].  
b. [ there [ is [ every P and no Q ] ] ]

The ungrammaticality of (44a) motivates a stronger ban than the one in (15b) above, which declared a sentence ungrammatical if its Logical Form contains an L-trivial constituent sentence. Gajewski's (2009) natural strengthening of (15b) that covers (44a) is (45):

(45) A sentence S is ungrammatical if its Logical Skeleton contains a nonlogical terminal element that is irrelevant to determining the semantic value of S.

For (44a), *P* in (44b) never plays any role in determining the semantic value of the sentence as a whole. Hence (44a) is correctly ruled ungrammatical by the new principle in (45). Analogously for (42b): two of the three occurrences of *P* in its LS in (43) are nonlogical terminal elements that make no difference to the semantic value of the sentence, whose truth



value is determined by just one of its conjuncts.<sup>21</sup> Thus a further extension of L-triviality along independently motivated lines results in the theory ruling out ellipsis in self-conjoined sentences, on a par with ellipsis parallelism.<sup>22</sup>

As a second case of ellipsis in non-trivial sentences, the rest of this subsection considers so-called (Griffiths 2019) MaxElide effects (Merchant 2008b), exemplified in (46) (Schuyler 2001). From a base sentence like (a), sluicing is possible in (b), but verb phrase ellipsis (VPE) is not in (c):

- (46) a. John will kiss someone, but I don't know who he will kiss *t*.  
b. John will kiss someone, but I don't know who ~~he will kiss~~ *t*.  
c. \* John will kiss someone, but I don't know who he will ~~kiss~~ *t*.

---

<sup>21</sup>The extent of the analogy is limited, however. Whereas the value of *P* is completely irrelevant to (44b), it still determines the truth of (43).

<sup>22</sup>The ungrammaticality in (42) extends to nominal coordination in (i), perhaps lending support to a sentential conjunct reduction analysis of the nominal conjunction in (a) along the lines of (b) (see Hirsch 2017 for references):

- (i) a. \* The boys and the boys left.  
b. \* [ The boys ~~left~~ ] and [ the boys left ]

In this vein, notice that in motivating (45) Gajewski (2009: exx. 56-58) implicitly sets aside an alternative conjunction reduction analysis of (44) as in (ii):

- (ii) a. \* [ [ There is every curious student ] and [ ~~there is no boring professor~~ ] ]  
b. [ [ ~~X~~ there is every P ] and [ there is no Q ] ]

The original (15b) correctly rules (a) ungrammatical, since the first conjunct of (b) is an L-trivial constituent sentence.

The paradigm in (46) is so far from being trivial or redundant that extended L-triviality seems to have no chance of accounting for it. The prospects for ellipsis parallelism to rule out VPE in (c), on the other hand, are much brighter — as long as the contrast condition is incorporated.

Previous analyses of (46), especially Takahashi & Fox (2005), have been framed in terms of ellipsis parallelism, but omit the contrast condition. With only the focus membership condition, ellipsis parallelism is unable to distinguish between sluicing (b) and VPE (c). Ellipsis is predicted to be licensed in both based on the same clause-level A and E in (47):

$$\begin{array}{ll}
 (47) \quad E = 6 \text{ he}_1 \text{ will kiss } t_6 & A = 8 \text{ John}_1 \text{ will kiss } t_8 \\
 \llbracket E \rrbracket = \lambda x.\text{kiss}'(x)(j) & \llbracket A \rrbracket = \lambda y.\text{kiss}'(y)(j) \\
 F(E) = \{ \lambda x.\text{kiss}'(x)(j) \} & \llbracket A \rrbracket \in F(E)
 \end{array}$$

Accepting that ellipsis licensing is successful for VPE (c), its ungrammaticality is instead attributed to the constraint in (48) (cf. Merchant 2008b):

$$(48) \quad \text{MaxElide: maximal elision must occur in parallelism domains.}$$

On this view, VPE (c) is ungrammatical for eliding less than sluicing (b).

Griffiths (2019) criticises MaxElide as an *ad hoc* solution to (46): transderivational comparison ranges over very conveniently chosen competitors, conspicuously omitting the perfectly good option of eliding nothing at all in (46a). In its place, Griffiths (2019) mounts an explanation for (46) by incorporating the contrast condition in ellipsis parallelism.<sup>23, 24</sup> (46c) is ungrammatical due to there being a contrast failure in (47), where  $\llbracket A \rrbracket = \llbracket E \rrbracket$ .

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<sup>23</sup>Griffiths (2019) attributes the version of ellipsis parallelism in (10), including the contrast condition to Rooth (1992b); but recall the discussion in section 2.2.

<sup>24</sup>Griffiths (2019) assumes that sluicing (46b), as opposed to VPE (46c), is subject to a separate Question-Under-Discussion based licensing condition requiring semantic identity between questions (Barros 2014); cf. clause (ii) of (10).

Treating (46c) as a contrast failure is a conceptual improvement on MaxElide, ruling it out on its own terms rather than as the loser of a competition with (46b). Further, Griffiths (2019) correctly predicts that when there is contrast, as between John and Mary in (49), ellipsis is successfully licensed:

(49) I know who JOHN will kiss  $t$  and who MARY will kiss  $t$ .

$E = 9 \text{ MARY}_F \text{ will kiss } t_9$

$A = 5 \text{ JOHN}_F \text{ will kiss } t_5$

$\llbracket E \rrbracket = \lambda x. \text{kiss}'(x)(m)$

$\llbracket A \rrbracket = \lambda y. \text{kiss}'(y)(j)$

$F(E) = \{ \lambda x. \text{kiss}'(x)(z) \mid z \in D_e \}$

$\llbracket A \rrbracket \in F(E) \text{ and } \llbracket A \rrbracket \neq \llbracket E \rrbracket$

However, Charlow (2020) shows that Griffiths's (2019) analysis falters when further members of the paradigm from Schuyler (2001) are taken into account. Ellipsis is ungrammatical when the contrastively focused expressions are beyond the c-command domain of the extracted *wh*-phrase, as in (50):

(50) \* SUE knows who John<sub>1</sub> will kiss  $t$ , and BILL knows who he<sub>1</sub> will kiss  $t$ , too.

Based on our theory of ellipsis parallelism so far, the opposition of the matrix subjects Sue and Bill should be enough to satisfy both focus membership and contrast in (50). To rule out ellipsis in (50), Griffiths (2019) makes use of the technical incompatibility between alternative semantics and A'  $\lambda$ -binding (Shan 2004). He follows Kotek (2016) in embracing this incompatibility to the extent of making it a constraint with empirical effect. With  $\lambda$ -binders as interveners to focus semantic composition, A and E cannot stretch to include the main clause subjects Sue and Bill in (50). A and E are instead limited to the embedded TP, whereby the contrast failure from (47) persists to rule the sentence ungrammatical.

However, variables (in particular here the *wh*-traces) still need to be bound by something, if not by their  $\lambda$ s. If they were left free, focus membership failures would result. To address this, Griffiths uses existential closure to bind free variables in A and E when calculating ellipsis licensing. But, as Charlow (2020) explains, existential closure does not undo the compositional problem for alternative semantics that  $\lambda$ -binders introduce. Any binding,

whether by  $\lambda$  or  $\exists$ , is incompatible with standard alternative semantics for the same reason; and a fix, proceeding from the assumption meanings are functions from assignments to values (Rooth 1985 et seq.), applies equally to  $\lambda$  and  $\exists$ .

Still, Charlow's (2020) criticism is levelled at Griffiths's (2019)  $\lambda$ -limit on the size of parallelism domains, not the contrast condition. To the extent that an account of the full MaxElide paradigm is forthcoming in the vein of ellipsis parallelism and contrast, it would be significant that the contrast condition is crucial to ellipsis licensing in having empirical bite beyond trivial sentences.<sup>25</sup>

In sum, where we had so far considered only trivialities, this subsection compared L-triviality and ellipsis parallelism against two kinds of non-trivial sentences: self-conjunction expressing iteration, and so-called MaxElide effects. While extended L-triviality could be further extended to rule out the redundancy of the former, the latter surely lie well outside its purview. Ellipsis parallelism, on the other hand, naturally accounts for the former, and Griffiths (2019) has demonstrated its potential for the latter.

The next section considers sentences that are non-trivial by virtue of intensionality. Ellipsis parallelism can account for intensionality contrasts in terms of focus on Hardt & Romero's (2004) VERUM operator. This approach delimits the relevant natural class of licensing predicates, which extended L-triviality would have to stipulate separately.

## 5 Intensionality and contrast

This section considers how the status of ellipsis changes when tautologous free relatives and conditionals are embedded. Recall tautologous free relatives from section 4.3, with (34) repeated here as (51). While (a) is perfectly grammatical, (b) with ellipsis is not:

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<sup>25</sup>For much more on MaxElide effects, see chapter 4.

- (51) a. John eats what he eats.  
 b. \* John eats what he does eat.

The difference in (51) does not persist in (52), however, where embedding under *Mary believes* renders ellipsis grammatical in (b):

- (52) a. Mary believes that John eats what he eats.  
 b. Mary believes that John eats what he does eat.

On our ellipsis parallelism theory so far, (52b) would receive the same treatment as (51b), namely (53):<sup>26</sup>

- (53) Mary believes that John<sub>1</sub> eats what he<sub>1</sub> does eat.  
 Mary believes [ [DP what<sub>3</sub> he<sub>1</sub> does eat *t*<sub>3</sub> ]<sub>2</sub> John<sub>1</sub> eats *t*<sub>2</sub> ].  
 A = <sub>2</sub> John<sub>1</sub> eats *t*<sub>2</sub>    E = <sub>3</sub> he<sub>1</sub> does eat *t*<sub>3</sub>  
 $[[A]]^w = [[E]]^w = \lambda x. \text{eat}'_w(x)(j)$

Thus (52b) is incorrectly predicted to be ungrammatical as a contrast failure.

The observation that ellipsis is ungrammatical in (51b), but fine in environments like (52b), is due to Horn (1981: 326). He further notices that whereas intensional predicates usually introduce *de re-de dicto* ambiguities, the free relative DP in sentences like (52b) cannot be read *de dicto*. That is, (52b) cannot mean that Mary believes the tautology that what John eats is what he eats. Rather, the free relative can only be read *de re*: (52b) asserts that Mary is correct, equating what John actually eats with what Mary believes him to eat.

We can already explain why (52b) is bad on a *de dicto* interpretation. For the sentence to be read *de dicto*, both A and E will be in the scope of *believe*, and contrast failure will result, as in (53). We can explain the rest of Horn's observations in terms of ellipsis parallelism by making the licensing calculations sensitive to intensionality. Notice that, in addition to

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<sup>26</sup>In (53) and subsequently, *w* is any possible world.

being unambiguous, (52b) has to be pronounced with stress on *does*. Stress on an auxiliary can signal polar focus, where the alternatives are the truth or falsity of the proposition — as was assumed in the ellipsis parallelism calculations for tautologous conditionals above in (11) et seq. (see also note 9). But stress on an auxiliary can instead signal focus not on polarity, but intensionality. Intuitively, contrast holds in (52b) between what Mary believes and the actual state of affairs.

This intuition can be implemented in terms of verum focus (cf. Höhle 1992).<sup>27</sup> Formally, Romero & Han (2004) introduce VERUM, which means roughly ‘it is for sure that’.<sup>28</sup> Focus on VERUM contributes alternatives to the proposition being true. The proposition is instead

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<sup>27</sup>“Verum focus” is fraught terminology. Gutzmann et al. (2020) distinguish between the the Focal Accent Thesis (FAT) and the Lexical Operator Thesis (LOT). According to FAT, verum focus has to do with the alternatives  $p, \neg p$ ; in the foregoing, this was termed ‘polar focus’. According to LOT, verum focus realises a lexical verum predicate, and is therefore not an instance of alternative focus. See Gutzmann et al. (2020) for further discussion and cross-linguistic support for LOT.

In what follows, the distinction between FAT and LOT is somewhat blurred. We adopt Romero & Han’s (2004) version of LOT in making use of their conversational epistemic operator VERUM. At the same time, we follow Hardt & Romero (2004) in supposing that this lexical predicate VERUM can be F-marked and contribute focus alternatives.

<sup>28</sup>More precisely, VERUM is a conversational epistemic operator which asserts that the speaker is certain that  $p$  should be added to the Common Ground. In the definition in (i) (Romero & Han 2004: 627, ex. 43),  $x$  is a free variable whose value is contextually identified with the addressee (or the individual sum of the addressee and the speaker);  $Epi_x(w)$  is the set of worlds that conform to  $x$ ’s knowledge in  $w$ ;  $Conv_x(w')$  is the set of worlds where all the conversational goals of  $x$  in  $w'$  are fulfilled (e.g., attain maximal information while preserving truth); and  $CG_w$  is the Common Ground, or set of propositions that the speakers

merely possible, or someone expects or wants or hopes it to be true or not true, etc., as sketched in (54) (Hardt & Romero 2004: 405, ex. 97):

- (54)  $F(\text{VERUM}_F p) = \{ \text{it is for sure true that } p, \text{ it is possible that } p, \text{ it is hoped that } p, \text{ it is doubted that } p, \text{ it is wanted that } p, \text{ it is expected that } p, \dots, \text{ John expects that } p, \text{ John hopes that } p, \text{ Sam expects that } p, \dots, \text{ it is for sure true that } \neg p, \text{ it is possible that } \neg p, \text{ it is hoped that } \neg p, \text{ it is doubted that } \neg p, \text{ it is wanted that } \neg p, \text{ it is expected that } \neg p, \dots, \text{ John expects that } \neg p, \text{ John hopes that } \neg p, \text{ Sam expects that } \neg p, \dots \}$

To illustrate, focus membership is satisfied via VERUM in (55) (Hardt & Romero 2004: 406, ex. 98). Informally, Sue expecting John to win is an alternative to John actually winning. Thus contrast is also satisfied — Sue expecting John to win is different from it actually happening:

- (55) Sue<sub>4</sub> expected John<sub>1</sub> to win, and he<sub>1</sub> DID win.  
 $\varepsilon = \text{win}$   
 $A = \text{Sue expected John to win} \quad \llbracket A \rrbracket = \lambda w. \text{ expect}'_w(\lambda w'. \text{ win}'_{w'}(j))(s)$   
 $E = \text{VERUM}_F \text{ John win} \quad \llbracket E \rrbracket = \lambda w. \text{ for-sure}'_w(\lambda w'. \text{ win}'_{w'}(j))$   
 $F(E) = \{ \text{it is for sure true that John won, it is possible that John won, } \dots, \text{ Mary wanted that John won, } \underline{\text{Sue expected that John won, } \dots} \}$   
 $\llbracket A \rrbracket \in F(E) \text{ and } \llbracket A \rrbracket \neq \llbracket E \rrbracket$

Armed with VERUM, we can now account for the grammaticality of ellipsis in (52b) on its *de re* interpretation. The sentence, repeated with obligatory stress on DOES indicated, passes ellipsis parallelism as in (56):

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assume in  $w''$  to be true (Stalnaker 1978):

- (i)  $\llbracket \text{VERUM}_i \rrbracket^{gx/i} = \llbracket \text{really}_i \rrbracket^{gx/i} =$   
 $\lambda p_{st} \lambda w. \forall w' \in \text{Epi}_x(w) [\forall w'' \in \text{Conv}_x(w') [ p \in \text{CG}_{w''} ] ]$

(56) Mary believes that John eats what he DOES eat.

[what<sub>4</sub> VERUM he<sub>1</sub> eat<sub>t<sub>4</sub></sub>] 3 Mary believes that John<sub>1</sub> eats t<sub>3</sub>

$\varepsilon = \text{eat } t_4$

A = 3 Mary believes that John eats t<sub>3</sub>

$\llbracket A \rrbracket = \lambda x. \lambda w. \text{believe}'_w(\lambda w'. \text{eat}'_{w'}(x)(j))(m)$

E = 4 VERUM<sub>F</sub> John eat t<sub>4</sub>

$\llbracket E \rrbracket = \lambda x. \lambda w. \text{for-sure}'_w(\lambda w'. \text{eat}'_{w'}(x)(j))$

$F(E) = \{ \lambda x. \lambda w. \text{it is for sure true in } w \text{ that John eats } x, \lambda x. \lambda w. \text{it is possible in } w$   
 $\text{that John eats } x, \dots, \lambda x. \lambda w. \text{Sue expects in } w \text{ that John eats } x,$

$\lambda x. \lambda w. \text{Mary believes in } w \text{ that John eats } x, \dots \}$

$\llbracket A \rrbracket \in F(E) \text{ and } \llbracket A \rrbracket \neq \llbracket E \rrbracket$

Focus membership holds in (56) by virtue of Mary's beliefs about what John eats being an alternative to what John actually eats. At the same time, contrast holds between Mary's beliefs and actuality.<sup>29</sup>

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<sup>29</sup>The paradigm of (51) and (52) recalls Russell's (1905) ambiguity, the main topic of Horn (1981). In (i), whereas (a) is at best infelicitous, it is perfectly acceptable when embedded under an intensional verb like *believe* in (b):

- (i) a. ?? Mary is as tall as she is.
- b. Mary believes she is as tall as she is.

On a *de re* reading of (b), Mary is correct — she is a certain height, and she thinks she is that height. On a *de dicto* reading, Mary subscribes to a tautology — that her height is her height. If (b) involves ellipsis, ellipsis parallelism predicts the *de dicto* reading to be ungrammatical in (b) just as in (52b), for the reason in (53); yet Horn (1981) reports it to be available.

The status of (i) raises issues about the structure of comparatives and comparative subdeletion that are beyond the scope of this dissertation. In particular, the obligatoriness of



Further to embedding under an intensional verb like *believe* in (52b), ellipsis is grammatical in the tautologous free relatives in (57) under an intensional noun like *fact* (Moulton 2009) in (a) and with the intensional operator *because* (Kratzer 1998) in (b) (again, cf. Horn 1981: 326, ex. 6’):

- (57) a. The fact that John eats what he DOES eat is disappointing.  
b. John eats what he DOES eat because he’s training for a marathon.

The same considerations apply equally to tautologous conditionals in (58). Intensional embedding renders ellipsis grammatical in (d), based on the alternation between what John thinks about his silliness, and his correctness in fact:<sup>30</sup>

- (58) a. If John<sub>j</sub> is silly, then he<sub>j</sub> is silly.  
b. \* If John<sub>j</sub> is silly, then he<sub>j</sub> is ~~silly~~.  
c. If John<sub>j</sub> thinks he is silly, then he<sub>j</sub> is silly.  
d. If John<sub>j</sub> thinks he is silly, then he<sub>j</sub> is ~~silly~~.

While intensionality and VERUM explain why ellipsis is good in (d), we should reassure ourselves that the prediction has not changed for the plain tautologous conditional in (b). There are two points to consider. First, unlike intensional embedding, conditionals are not an environment we expect to make ellipsis good. This is straightforwardly so if we model *if* as material implication, without reference to possible worlds.<sup>31</sup> It remains so if we model

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ellipsis in comparatives, as in (ii), could be complicating matters:

- (ii) Mary is as tall as Sam is (\*tall).

<sup>30</sup>(58) uses the predicate *silly* rather than the familiar *wrong* to avoid expressing something unnecessarily philosophical in (c) and (d).

<sup>31</sup>See Mandelkern (2019) for defence of the logical truth of *If p, then p*.

*if*-clauses as restricting the modal base of a (covert) universal modal (Kratzer 1986). By the semantics of the modal, a conditional statement is true in a world  $w$  iff at each world  $w'$  accessible from  $w$  where  $p$  is true,  $q$  is also true. Where  $p = q$ , as in a trivial case like (58b), there is no room for contrast to arise.

The second point to consider regarding the continuing ungrammaticality of (58b) is the potential role of VERUM. As shown in (59), VERUM can be used to satisfy contrast, but not focus membership. Taking stress on *is* to realise focus on VERUM rather than polar focus in E, the contrast condition is satisfied in (59) — E contains VERUM, but A does not:

- (59) \* If John<sub>1</sub> is silly, then he<sub>1</sub> is<sub>F</sub> silly.                     $\varepsilon = \text{silly}$   
           E = VERUM<sub>F</sub> he<sub>1</sub> is silly    A = John<sub>1</sub> is silly  
            $\llbracket E \rrbracket = \lambda w. \text{for-sure}'_w(\lambda w'. \text{silly}'_{w'}(j))$              $\llbracket A \rrbracket = \lambda w. \text{silly}'_w(j)$   
            $\llbracket A \rrbracket \neq \llbracket E \rrbracket$ , **but**  $\llbracket A \rrbracket \notin F(E)$

However, (59) continues to predict (58b) to be ungrammatical due to a focus membership failure: plain  $p$  is not a member of the alternative set  $F(\text{VERUM}_F p)$  in (54).

In this vein, ellipsis parallelism in concert with VERUM can explain why only intensional embedding rescues ellipsis in tautologous free relatives and conditionals. Embedding under an aspectual verb like *start* leaves ellipsis ungrammatical in (60):

- (60) \* John is starting to eat what he DOES eat.

While a detailed analysis of aspectual verbs is beyond the scope of this dissertation, it is reasonable to suppose that they are not intensional. For example, *start* is about the extent to which something actually happened, not whether it happened, or the likelihood or desirability of it happening. This differs from alternatives to VERUM, which are inherently intensional, encompassing desires or possibilities of something happening. Non-intensional predicates, therefore, are not in the set of alternatives to VERUM. Since (*John*) *start* is not a member of  $F(\text{VERUM})$ , ellipsis in (60) is ruled out as a focus membership failure if A is set as the main

clause. Taking A to be the embedded clause, meanwhile, will result in contrast failure.<sup>32</sup>

In sum, contrast failures with ellipsis in tautologous free relatives and tautologous conditionals can be rescued by contrasts involving intensionality. Ellipsis parallelism identifies intensional predicates as a natural class as a straightforward consequence of VERUM and its focus alternatives. Extended L-triviality, on the other hand, would have to be supplemented with the definition of such a class by stipulation. We saw in section 4.3 that extended L-triviality makes the right cut regarding tautologous free relatives (34/51) between the fully pronounced (a) and elliptical (b), which have contingent and trivial LSs, respectively. Extended L-triviality is likewise successful regarding the *de dicto* versus *de re* readings of (52b). The *de dicto* reading can be ruled out along similar lines to the unembedded case, as in (61). The LS contains an L-trivial constituent sentence, namely the embedded clause:

- (61) Mary believes John<sub>1</sub> eats what he<sub>1</sub> does eat.  
 \* Mary believes [ [DP what<sub>k</sub> he<sub>1</sub> does eat  $t_k$ ]<sub>i</sub> John<sub>1</sub> eats  $t_i$  ].  
 $\beta$  Q [ ✗ [ what  $\alpha$  does P  $\alpha$  P ] ]

The *de re* reading of (52b), meanwhile, is analysed as in (62):

- (62) Mary believes John<sub>1</sub> eats what he<sub>1</sub> does eat.  
 [DP what<sub>k</sub> he<sub>1</sub> does eat  $t_k$ ]<sub>i</sub> Mary believes John<sub>1</sub> eats  $t_i$ .  
 [ what  $\alpha$  does P  $\beta$  Qs  $\alpha$  P ]

The LS in (62) is contingent. Hence extended L-triviality correctly predicts (52b) to be grammatical on its *de re* reading.

However, extended L-triviality fails to capture the import of intensionality for ellipsis licensing. Whereas embedding under intensional *believe* is grammatical (56), embedding

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<sup>32</sup>This failure of focus membership is an issue quite apart from tautologous free relatives, triviality, or ellipsis. Focus (and ellipsis) in (i) would be ruled out along similar lines:

- (i) \* John<sub>1</sub> started to work, and he<sub>1</sub> DID (work).

under *start* is not (60). The difference between intensional and non-intensional embedding survives at LS. Per (15c), to obtain an LS constituents are replaced with constants of the same type, and intensional and non-intensional embedders are of different types. The problem is that the LS for (60) has broadly the same format as the one for (62), as in (63):

- (63) John<sub>1</sub> is starting to eat what he<sub>1</sub> does eat.  
 [<sub>DP</sub> what<sub>k</sub> he<sub>1</sub> does eat *t<sub>k</sub>*]<sub>i</sub> John<sub>1</sub> is starting to eat *t<sub>i</sub>*.  
 [ what α does P α is Q to P ]

Since the LF in (63) is contingent, extended L-triviality incorrectly predicts (60) to be grammatical.

Overall, extended L-triviality would have to be supplemented with an explanation — or stipulation — for why non-intensional embedding fails to rescue ellipsis. From the perspective of ellipsis parallelism, on the other hand, this distinction falls out naturally from focus on VERUM.

## 6 Conclusion

This chapter started from the observation that ellipsis is ungrammatical in tautologous conditionals. While this observation was surprising given the centrality of ‘identity’ in theories of ellipsis licensing, we developed and evaluated two theories to account for it. According to one, the problem is the ellipsis, which fails a contrast condition (Rooth 1992a) that is a crucial component of ellipsis parallelism (Rooth 1992b). According to the other, the problem is the tautology, which persists at the abstract level of logical skeletons to cause ungrammaticality in an extended version of Gajewski’s (2009) theory of L-triviality. Both theories are equally able to account for the ungrammaticality of ellipsis in tautologous conditionals, and for the fact that ellipsis becomes good when the antecedent is sourced from a preceding question in the discourse. On declarative discourse antecedents, extended L-triviality applies more straightforwardly than ellipsis parallelism, which needs

to make recourse to QUDs. But ellipsis parallelism fares better overall, generalising more successfully to double ellipsis, other trivial sentences involving negation, and non-trivial sentences. Finally, ellipsis parallelism more naturally captures the sensitivity of the contrast condition to intensionality.

## CHAPTER THREE

# Symmetrical Predicates in Verb Phrase Ellipsis

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## 0 Contrast *meets* identity

Based on trivial and near-trivial sentences, the previous chapter motivated (0) as a necessary condition on verb phrase ellipsis (VPE):

- (0) For  $\varepsilon$  to be elided,  $\varepsilon$  must be inside a phrase E that has an antecedent A such that either:
- i)  $[[A]] \in F(E)$  and  $[[A]] \neq [[E]]$ ; or
  - ii)  $[[A]] \subseteq F(E)$

This chapter provides further support for the focus membership and contrast requirements in clause (i) of (0) by analysing verb phrase ellipsis involving symmetrical predicates. In so doing, the chapter engages with the issue of identity in ellipsis licensing by adding to the literature on ellipsis mismatches.

In abstract, this chapter studies the behaviour of symmetrical predicates (e.g. *meet*, *dance with*) in verb phrase ellipsis. Symmetrical predicates support participant and transitivity switching verb phrase ellipsis, where syntactic identity between the antecedent and elided verb phrases is lacking. Such syntactic mismatches are predicted to be tolerable by the semantic identity condition on ellipsis in (0). Elided material must be contained in a phrase with a semantically parallel antecedent, defined in terms of focus, as commonly assumed (Rooth 1992b et seq.). In addition, the phrase containing elided material must contrast with its antecedent, as proposed in chapter 2 (cf. Stockwell 2018; Griffiths 2019). Furthermore,

transitivity switching with partially symmetrical predicates like *kiss* shows that the focus membership requirement is enforced in only one direction between antecedent and ellipsis (Rooth 1992b, Fox 2000) rather than both (Merchant 2001, Griffiths 2019).

This chapter supersedes Stockwell (2017a) and Stockwell (2017b): “VP ellipsis with symmetrical predicates”, in Andrew Lamont and Katerina Tetzlof (eds.), *Proceedings of the Forty-Seventh Annual Meeting of the North East Linguistic Society, Volume 3*, pp. 141-154, GLSA; and “Participant switching verb phrase ellipsis”, MA thesis, University of California, Los Angeles.

## 1 Introduction

This chapter engages with the issue of identity in ellipsis licensing by adding verb phrase ellipsis (VPE) with symmetrical predicates to the literature on ellipsis mismatches. To illustrate, consider (1).<sup>1</sup> On its intended interpretation, the naturally occurring newspaper headline in (a) questions whether the Tories will let Cameron work with Merkel. This interpretation is represented in (b), where ~~strikeout~~ indicates elided structure:

- (1) a. EU referendum: Merkel will work with Cameron on EU —  
but will Tories let him?
- b. EU referendum: Merkel<sub>i</sub> will work with Cameron<sub>j</sub> on EU —  
but will Tories let him<sub>j</sub> ~~work with her<sub>i</sub>~~?

Example (1) exemplifies what I dub ‘participant switching verb phrase ellipsis’. The participants switch over between the conjuncts: *Merkel* is the subject of the first conjunct, but the object of the second; while *Cameron* is the object of the first conjunct but the subject

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<sup>1</sup><http://www.theguardian.com/politics/2015/may/09/angela-merkel-cameron-eu-rightwing-tories>. Last retrieved 2020-06-22.



of the second. VPE is licensed despite the mismatching objects across the VPs.

Constructed examples of participant switching VPE are given in (2) and (3). Again, the subject and object switch between antecedent and ellipsis. With primary focus on *SHE* (indicated by capitalisation) ellipsis can apply to the lower VP (a) or the higher VP (b). With primary focus on *DID(N'T)*, ellipsis can apply to the lower VP to the exclusion of the higher (c):

- (2) a. John<sub>1</sub> wanted to dance with Mary<sub>2</sub>, but SHE<sub>2</sub> didn't want to ~~dance with him<sub>T</sub>~~.  
b. John<sub>1</sub> wanted to dance with Mary<sub>2</sub>, but SHE<sub>2</sub> didn't ~~want to dance with him<sub>T</sub>~~.  
c. John<sub>1</sub> wanted to dance with Mary<sub>2</sub>, but (in the end) she<sub>2</sub> DIDN'T ~~dance with him<sub>T</sub>~~.
- (3) a. John<sub>1</sub> wanted to meet Mary<sub>2</sub>, and SHE<sub>2</sub> wanted to ~~meet him<sub>T</sub>~~, too.  
b. John<sub>1</sub> wanted to meet Mary<sub>2</sub>, and SHE<sub>2</sub> did ~~want to meet him<sub>T</sub>~~, too.  
c. John<sub>1</sub> wanted to meet Mary<sub>2</sub>, and (as things turned out) she<sub>2</sub> DID ~~meet him<sub>T</sub>~~.

In overview, this chapter shows that participant switching VPE is possible only with symmetrical predicates — e.g. *work with* (1), *dance with* (2), *meet* (3) — and argues that the syntactic object mismatch is irrelevant to a semantic identity condition on ellipsis comprising focus membership and contrast. In outline, section 2 establishes the empirical generalisation that participant switching VPE is possible only with symmetrical predicates. Section 3 shows that participant switching VPE poses a challenge for syntactic identity in ellipsis. Section 4 introduces a widely assumed semantic identity condition on ellipsis in terms of focus membership (Rooth 1992b; Fox 2000), but motivates an additional requirement for contrast (chapter 2; Stockwell 2018; Griffiths 2019). Section 5 shows how this strengthened licensing condition successfully accounts for participant switching VPE, encompassing discussion of obligatory switching, verum focus, contrast, and negation. Lastly, section 6 marshals data

from ‘transitivity switching VPE’ to show that the focus membership condition is enforced in only one direction from antecedent to ellipsis (Rooth 1992b; Fox 2000) rather than both (Merchant 2001; Griffiths 2019). Section 7 concludes.

## 2 Symmetry

This section sets out the empirical landscape of participant switching VPE, establishing the generalisation that it is possible only with symmetrical predicates. The elliptical sentences in the introduction all involved symmetrical predicates — *work with* in (1), *dance with* in (2), and *meet* in (3). These predicates all conform to the definition of symmetry in (4):<sup>2</sup>

(4) Symmetry: For all  $x, y$ :  $R(x,y) \leftrightarrow R(y,x)$

For example, if person  $x$  meets person  $y$ , it follows automatically that  $y$  meets  $x$ , and vice versa.

Non-symmetrical predicates, on the other hand, do not license participant switching VPE; e.g. *criticise* in (5):<sup>3</sup>

(5) \* John<sub>1</sub> criticised Mary<sub>2</sub>, even though she<sub>2</sub> wasn’t supposed to ~~criticise him~~<sub>T</sub>.

While participant switching VPE relies crucially on symmetry, it is indifferent as to whether the symmetry is lexical or derived. With *meet* (3), symmetry is lexical: a meeting event cannot but involve co-participants, each of whom meets the other. Another lexically symmetrical predicate is *marry* in (6):

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<sup>2</sup>These predicates are semantically symmetrical, setting aside the non-truth-conditional Figure-Ground (Talmy 1983) information structure contributions of syntax (Gleitman et al. 1996).

<sup>3</sup>Focus is not marked in (5), since the sentence is ungrammatical however it is pronounced.

(6) John<sub>1</sub> yearned to marry Mary<sub>2</sub>, and she<sub>2</sub> did ~~yearn to marry him<sub>T</sub>~~, too.

For *work with* (1), on the other hand, symmetry is derived by adjoining a *with*-prepositional phrase to the otherwise non-symmetrical *work*, adding a co-agent in the event (Siloni 2012). The *with*-phrase likewise derives a symmetrical predicate from non-symmetrical *build a house* in (7):<sup>4</sup>

(7) John<sub>1</sub> intended to build a house with Mary<sub>2</sub>, but she<sub>2</sub> most certainly did not ~~intend to build a house with him<sub>T</sub>~~.

Whereas *with*-phrases add a participant, symmetry can also be derived from some ditransitive verbs by removing the agent via passivisation, as for *be introduced to* in (8):

(8) John<sub>1</sub> needed to be introduced to Mary<sub>2</sub>, and (in the end) she<sub>2</sub> was ~~introduced to him<sub>T</sub>~~.

Lastly, *dance with* (2) presents an intermediate case between lexical and derived symmetry. Intransitive *dance* is not symmetric when it takes an individual subject or a plural subject viewed distributively. But *dance* is symmetric when it takes a plural subject viewed collectively, or after the addition of a *with*-phrase. A similar case is *talk with* in (9):

(9) John<sub>1</sub> hoped to talk with Mary<sub>2</sub>, but she<sub>2</sub> hoped not to have to ~~talk with him<sub>T</sub>~~.

To confirm that participant switch readings are genuinely available, consider the reconstructed version of (1) involving *work with* in (10). The participant switch reading is indicated in (10a). However, the reading in (10b) is also available where the ellipsis is

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<sup>4</sup>It is the symmetric semantic contribution of the *with*-phrase that is crucial, rather than its syntax — participant switching VPE is not licensed by *with* in the non-symmetrical idiom *mess with* in (i):

(i) \* John<sub>1</sub> conspired to mess with Mary<sub>2</sub>, but she<sub>2</sub> didn't want to ~~mess with him<sub>T</sub>~~.

resolved using only the verb, to the exclusion of the *with*-phrase.<sup>5</sup> This way of resolving the ellipsis is obligatory when there is an overt contrasting *with*-phrase, as in (10c). One might then object that the ‘verb only’ reading in (10b) is in fact the only reading of (10), since it entails the participant switch reading from (10a) — if Mary doesn’t want to work, it follows that she doesn’t want to work with anyone, John included:

- (10) John<sub>1</sub> wanted to work with Mary<sub>2</sub>, but she<sub>2</sub> didn’t want to.
- a. John<sub>1</sub> wanted to work with Mary<sub>2</sub>, but she<sub>2</sub> didn’t want to ~~work with him~~<sub>T</sub>.
  - b. John<sub>1</sub> wanted to work with Mary<sub>2</sub>, but she<sub>2</sub> didn’t want to ~~work~~.
  - c. John<sub>1</sub> wanted to work with Mary<sub>2</sub>, but she<sub>2</sub> didn’t want to ~~work~~ with Bill<sub>3</sub>.
  - d. John<sub>1</sub> wanted to work with Mary<sub>2</sub>, but she<sub>2</sub> didn’t want to ~~work with him~~<sub>T</sub> / # ~~work~~. She<sub>2</sub> was only willing to work with Bill<sub>3</sub>.
  - e. Mary<sub>2</sub> was perfectly willing to work, but only with Bill<sub>3</sub>. John<sub>1</sub> really wanted to work with Mary<sub>2</sub>. But since Mary<sub>2</sub> got her<sub>2</sub> way, she<sub>2</sub> didn’t have to ~~work with John~~<sub>T</sub> / # ~~work~~.

However, the existence of the participant switch reading is confirmed by the felicity of (10d). The continuation follows on naturally from the participant switch reading in (10a) — Mary may not want to work with John, but she could still be perfectly happy to work with someone else. By contrast, the continuation contradicts the second conjunct of (10b):

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<sup>5</sup>For a given speaker, the prominence of the reading in (10b) seems to correlate with the availability of a reading of (i) that omits the VP-adverb from the elided VP, as in (ib), in addition to the universally preferred (ia):

- (i) John left quickly, and Mary did too.
  - a. John left quickly, and Mary did ~~leave quickly~~ too.
  - b. John left quickly, and Mary did ~~leave~~ too.

being happy to work with Bill is incompatible with Mary not wanting to work at all. Parallel reasoning applies to (10e), where the sentence that contradicts the ‘verb only’ reading precedes the elliptical sentence. Notice that the preceding sentence still does not provide a direct antecedent for ellipsis of *work with John*, which interpretation arises only via participant switching.

We therefore conclude that the participant switch reading in (10a) is a genuine reading of (10). In any case, no such ambiguity along the lines of (10a) versus (10b) arises with lexically symmetrical predicates like *meet*, whose requirement for co-participants makes a participant switch reading inevitable in (3). In other words, since *\*Mary met* is ungrammatical, the interpretation of the elliptical second conjunct throughout (3) must include a co-participant; the most obvious candidate being *John* from the first conjunct.<sup>6</sup>

The empirical generalisation that participant switching VPE is licensed by the semantic notion of symmetry urges an analysis in terms of a semantic identity condition on ellipsis. Before undertaking that task in section 4, the next section considers how participant switch readings should be syntactically supported, and the challenge this poses to syntactic identity in ellipsis.

### 3 Syntax and non-identity

The previous section established that there are genuine participant switch readings with symmetrical predicates in VPE. The way participant switch readings have been indicated so far — with objects and *with*-phrases inside the elided verb phrase — assumes a PF-deletion approach to ellipsis (Merchant 2001). However, the indicated structure poses a major challenge for syntactic identity: the antecedent and elided VPs have starkly different structures, since the object of the verb or preposition switches between them. As represented

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<sup>6</sup>In fact, *John* is the only candidate; see section 5.2 on obligatory switching.

in (11), for example, simplistic syntactic identity does not hold. The antecedent VP is *work with Mary*, whereas the elided VP is *work with him*.<sup>7</sup> Despite this mismatch in form, ellipsis is licensed:

- (11) John<sub>1</sub> wanted to work with Mary<sub>2</sub>, but she<sub>2</sub> didn't want to ~~work with him~~<sub>T</sub>.

This section presents the challenge that VPE with symmetrical predicates poses to syntactic identity in ellipsis. The first three subsections consider attempts to reconcile participant switched interpretations with syntactically identical structures. However, attempts to do so in terms of partial control *PRO*, Vehicle Change, and voice mismatch fail. All the while, the challenge posed to syntactic identity does not amount to an argument in favour of purely anaphoric theories of ellipsis, where the ellipsis site is a pro-form resolved in discourse (e.g. Hardt 1993). As reviewed in the final subsection, a standard argument for the presence of syntactic structure in ellipsis sites can be run no less well on participant switching VPE. The conclusion will be that syntactic mismatches of the limited kind involved in VPE with symmetrical predicates must be tolerated, with their grammaticality resting far more on the semantic factors discussed in section 4.

### 3.1 Partial control *PRO*

This subsection considers an attempt to represent participant switching VPE with greater syntactic identity between the ellipsis and its antecedent in terms of partial control *PRO*.

To begin, notice that a more complete representation of (11) would include an obligatory control *PRO* above both the antecedent and elided VPs, as in (12):

- (12) John<sub>1</sub> wanted PRO<sub>1</sub> to work with Mary<sub>2</sub>, but she<sub>2</sub> didn't want PRO<sub>2</sub> to ~~work with him~~<sub>T</sub>.

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<sup>7</sup>Or *work with John* — see note 12, below.

It might then be countered that the ellipsis site does not take the form indicated in (11) and (12), but rather includes only the verb *work*. The participant switch reading would then be supported by a partial control *PRO* above the ellipsis site. In (13), *PRO*<sub>1+2</sub> is partially controlled by *she*<sub>2</sub>, with *John*<sub>1</sub>'s index added:

(13) John<sub>1</sub> wanted to PRO<sub>1</sub> work with Mary<sub>2</sub>, but she<sub>2</sub> didn't want PRO<sub>1+2</sub> to work.

The representation in (13) makes significant progress towards syntactic identity. The direct mismatch between *Mary* and *him* in (11) has been replaced by a mismatch in the presence of a *with*-phrase in the antecedent, *work with Mary*, and its absence from the ellipsis site, *work*. This structure might begin to lend itself to a syntactic identity condition on ellipsis couched in non-distinctness (Chomsky 1965, Ranero 2019), and where reduction in structure is tolerated from antecedent to ellipsis (Thoms 2013, at least for adjuncts). Meanwhile, the difference between exhaustive and partially controlled *PRO* is semantic, and in any case lies above the ellipsis site.

However, the steps taken towards syntactic identity in (13) rely on the presence of partial control *PRO*, while participant switching VPE does not. The argument that follows pares away at the presence of *PRO* in four steps, resulting in the necessary acceptance of syntactic mismatch. First, *PRO* can be present in just one of the antecedent and elliptical clauses. Second, when *PRO* is absent from the elliptical clause, there is no way to represent the participant switch reading via partial control. Third, *PRO* can be entirely absent from sentences involving participant switching VPE. Fourth and finally, collective predicates grammatically require that the co-participant be represented, making syntactic mismatches in the absence of *PRO* inevitable.

Consider first (14), where *want* embeds the elided VP but not its antecedent. There must be a *PRO* in the second conjunct, ruling out the representation in (14a). This leaves open the possibility that *PRO* is partially controlled, as in (14b), or exhaustively controlled with a mismatching *with*-phrase, as in (14c). Of the two, the considerations discussed with respect

to (13) above favour the former option, (14b):

- (14) John<sub>1</sub> worked with Mary<sub>2</sub>, even though she<sub>2</sub> hadn't wanted to.
- a. ✗ John<sub>1</sub> worked with Mary<sub>2</sub>, even though she<sub>2</sub> hadn't wanted to  
work with him<sub>1</sub>.
  - b. John<sub>1</sub> worked with Mary<sub>2</sub>, even though she<sub>2</sub> hadn't wanted PRO<sub>1+2</sub> to work.
  - c. John<sub>1</sub> worked with Mary<sub>2</sub>, even though she<sub>2</sub> hadn't wanted PRO<sub>2</sub> to  
work with him<sub>1</sub>.

But consider second (15), where a participant switch reading is possible just as it was for (11).<sup>8</sup> Here the elided VP is not introduced by a control verb, ruling out either of the representations (15b) or (15c) with *PRO* above the ellipsis site. Instead, the only structural representation available to support the participant switch reading is one involving a mismatching *with*-phrase, as in (15a):

- (15) John<sub>1</sub> wanted to work with Mary<sub>2</sub>, but (in the end) she<sub>2</sub> DIDN'T.
- a. John<sub>1</sub> wanted PRO<sub>1</sub> to work with Mary<sub>2</sub>, but she<sub>2</sub> DIDN'T work with him<sub>1</sub>.
  - b. ✗ John<sub>1</sub> wanted PRO<sub>1</sub> to work with Mary<sub>2</sub>, but she<sub>2</sub> DIDN'T PRO<sub>1+2</sub> work.
  - c. ✗ John<sub>1</sub> wanted PRO<sub>1</sub> to work with Mary<sub>2</sub>, but she<sub>2</sub> DIDN'T PRO<sub>2</sub>  
work with him<sub>1</sub>.

Third, and moreover, participant switching VPE is indifferent to the presence of *PRO* in either the antecedent or elliptical clauses. This indifference is apparent in (16), where the complement of *expect* involves raising-to-object rather than control:<sup>9</sup>

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<sup>8</sup>Recall also (8) with *be introduced to* from section 2.

<sup>9</sup>Recall also (1) with *let*.



(16) Bill<sub>3</sub> expected John<sub>1</sub> to work with Mary<sub>2</sub>, and (in the end) she<sub>2</sub> DID  
~~work with him<sub>1</sub>~~.

Still, one might object that the ellipsis site could syntactically contain just *work* in all of (14), (15) and (16), with the participant switched interpretation, even as reinforced by the contextualisations in (10), arising from extra-grammatical reasoning about plausible situations. This objection rests on plain intransitive *work* being a grammatical possibility as the ellipsis: *Mary worked*. However, as foreshadowed by the remarks on *meet* in the previous section, there is no plain intransitive option with collective predicates, which require co-participants: \**Mary met*.

Hence the fourth and final step in the argument is (17). With no *PRO* (in the elliptical clause), mismatching direct objects (*Mary* vs. *John*) are the only way that the participant switch reading can be grammatically represented:

(17) Bill<sub>3</sub> expected John<sub>1</sub> to meet Mary<sub>2</sub>, and (in the end) she<sub>2</sub> DID  
~~meet him<sub>1</sub>~~ / \**meet*.

A parallel point can be made for mismatching *with*-phrases rather than mismatching direct objects based on (18), which adds *with* to (17):

(18) Bill<sub>3</sub> expected John<sub>1</sub> to meet with Mary<sub>2</sub>, and (in the end) she<sub>2</sub> DID  
~~meet with him<sub>1</sub>~~ / \**meet*.

In conclusion, syntactically identical representations of participant switch readings cannot be achieved by appealing to partial control *PRO*.

### 3.2 Vehicle Change

The previous subsection concluded that the mismatches involving direct and *with*-phrase objects in participant switching VPE cannot be explained away in terms of partial control *PRO*. A second attempt at reconciling these mismatches with syntactic identity might be to try and reduce them to other well-known mismatches under the rubric of Vehicle Change (Fiengo & May 1994). However, participant switch mismatches are not within the purview of Vehicle Change, which can alter the binding-theoretic status of a DP but not its reference.

The classic Vehicle Change paradigm is given in (19). The second conjunct of (19a) is understood to mean that John thinks Sally admires John, based on *admires John* in the first conjunct. However, plugging *admires John* into the second conjunct is ungrammatical in the fully pronounced (19b). The referring-expression *John<sub>I</sub>* is bound, since it is c-commanded by the coindexed pronoun *he<sub>I</sub>*, giving rise to a Condition C effect. To the extent that ellipsis cannot render ungrammatical structures grammatical,<sup>10</sup> the badness of (19b) means that the structure of (19a) cannot be as in (19c). Happily, the interpretation of (19a) can also be represented with a pronoun in place of the name, which is grammatical when pronounced in (19d). Following Fiengo & May (1994), the solution for representing the interpretation of (19a) posits a pronoun in the ellipsis site, as in (19e), which yields the observed meaning via a grammatical structure:<sup>11</sup>

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<sup>10</sup>Though cf. island amelioration under movement analyses of sluicing (Ross 1967).

<sup>11</sup>The presence of the pronoun in the ellipsis site in (19b) is independently detectable in (i). The ungrammaticality of (a) is due to a Condition B effect on the elided structure indicated in (b):

- (i) a. \* Mary admires John<sub>I</sub>, and he<sub>I</sub> does, too.
- b. \* Mary admires John<sub>I</sub>, and he<sub>I</sub> does ~~admire him<sub>T</sub>~~, too.

- (19) a. Mary admires John<sub>1</sub>, and he<sub>1</sub> thinks Sally does, too.  
 b. \* Mary admires John<sub>1</sub>, and he<sub>1</sub> thinks Sally admires John<sub>1</sub>, too.  
 c. ✗ Mary admires John<sub>1</sub>, and he<sub>1</sub> thinks Sally does ~~admire John<sub>T</sub>~~, too.  
 d. Mary admires John<sub>1</sub>, and he<sub>1</sub> thinks Sally does admire him<sub>1</sub>, too.  
 e. Mary admires John<sub>1</sub>, and he<sub>1</sub> thinks Sally does ~~admire him<sub>T</sub>~~, too.

Thus DPs can shift their binding-theoretic status from Referring expression (e.g. *John*) to a pronoun (e.g. *him*) in ellipsis sites. However, Vehicle Change cannot alter the reference of a DP. In principle, changing the reference of the DP in the ellipsis site from John to someone else would have been another way to fix the Condition C violation in (19c). But this is not something Vehicle Change can do — (19a) cannot mean that John thinks Sally admires Bill, for example. Applied to participant switching VPE, a sentence like (20) involves a change of reference in the object from Mary to John:<sup>12</sup>

- (20) John<sub>1</sub> wanted to meet Mary<sub>2</sub>, but she<sub>2</sub> didn't want to meet him<sub>T</sub>.

Hence Vehicle Change cannot help reconcile participant switching VPE with syntactic identity.

### 3.3 Voice mismatch

Lastly, participant switching VPE cannot be reconciled with syntactic identity by assimilation to voice mismatches. Active-passive VPE mismatches like (21) are often highly acceptable (Merchant 2013, Merchant, 2008a, 169, ex. 2b):

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<sup>12</sup>The ellipsis site in (20) could equally well contain the proper name *John*. Unlike in (19), there is no potential condition C violation. Pronouns are arbitrarily shown in the ellipsis site of participant switching VPE throughout.

- (21) a. The janitor must remove the trash whenever it is apparent that it should  
be removed.
- b. \* The janitor must remove the trash whenever it is apparent that it should  
(be) removed.

Notice from the contrast between (a) and (b), however, that the passive auxiliary *be* must be pronounced above the ellipsis site. Yet there is no such requirement for *be* to be pronounced above the ellipsis site in (22). This difference regarding *be* strongly favours a representation of the participant switch reading along the lines of (a) over an elided passive structure like (b):

- (22) John<sub>1</sub> wanted to meet Mary<sub>2</sub>, but she<sub>2</sub> didn't want to.
- a. John<sub>1</sub> wanted to meet Mary<sub>2</sub>, but she<sub>2</sub> didn't want to meet him<sub>1</sub>.
- b. ✗ John<sub>1</sub> wanted to meet Mary<sub>2</sub>, but she<sub>2</sub> didn't want to be met by him<sub>1</sub>.

Furthermore, voice mismatch would fail to capture the necessity of symmetry to participant switched interpretations. Compare (22) involving symmetrical *meet* with (23) involving involving non-symmetrical *criticise*. Their contrasting grammaticality would not be reflected by the passive representations in (b), which share the same fault in eliding rather than pronouncing *be*:

- (23) \* John<sub>1</sub> wanted to criticise Mary<sub>2</sub>, but she<sub>2</sub> didn't want to.
- a. \* John<sub>1</sub> wanted to criticise Mary<sub>2</sub>, but she<sub>2</sub> didn't want to  
be criticised by him<sub>1</sub>.
- b. ✗ John<sub>1</sub> wanted to criticise Mary<sub>2</sub>, but she<sub>2</sub> didn't want to  
be criticised by him<sub>1</sub>.

In sum, assimilating participant switching VPE to voice mismatch would leave unexplained why no passive auxiliary is pronounced, while missing the empirical generalisation of symmetry.

### 3.4 Interim summary

To summarise this section so far, participant switching VPE poses a challenge to syntactic identity, since it involves mismatching object DPs or *with*-phrases. In some cases, the object mismatch problem could be circumvented by appealing to partial control *PRO*; but this analytical option is unavailable when the ellipsis site is not embedded under a control predicate. Further, the syntactic mismatch is not one that can be remedied by Vehicle Change or voice mismatch. Instead, it seems that limited syntactic non-identity must be tolerated in the face of participant switching VPE. Ellipsis is licensed despite mismatching objects switching over between the antecedent and elided VPs. At the same time, this challenge for syntactic identity does not amount to an argument in favour of non-syntactic ellipsis sites. As the next subsection shows, a strong argument in favour of syntactic structure in ellipsis sites can be run perfectly well on participant switching VPE.

### 3.5 Syntactic structure in ellipsis sites

The challenge that participant switching VPE poses for syntactic identity might look to favour anaphoric theories of ellipsis over more heavily syntactic ones; that is, theories where the ellipsis site contains no more than a pro-form (e.g. Hardt 1993) rather than syntactic structure that is deleted at PF (Merchant 2001). However, the question of whether syntactic structure is present is separate from the question of whether that syntactic structure is identical to an antecedent. This subsection shows that a central argument in favour of there being syntactic structure in the ellipsis site can be run on participant switching VPE just as well as plainer cases. The conclusion is that a limited amount of mismatch must be allowed in the syntactic structure that supports participant switch readings.

The argument runs as follows. A'-movement requires a structurally represented lower position — a trace, or copy. This requirement should continue to hold in ellipsis sites, as indicated in (24a). Overt pro-forms like *do so*, on the other hand, do not support

A'-movement, as shown in (24b):

- (24) a. I know which car John bought *t*, and which car Mary did ~~buy~~-*t*.  
b. \* I know which car John bought *t*, and which car Mary did so.

All else equal, overt and covert pro-forms are expected to behave the same way with respect to A'-movement. Hence the contrast between (24a) and (24b) argues in favour of syntactic structure in the ellipsis site (Johnson 2001), and against it consisting of a silent pro-form (Hardt 1993):

This argument can be run just as well on participant switching VPE, with the same results in (25). An object DP is topicalised out of the VPs, leaving the participant switch reading intact under ellipsis in (25a). Parallel to the contrast in (24), however, the overt pro-form version of (25a) is ungrammatical in (25b):

- (25) a. The waltz, John wanted to dance *t* with Mary; but the tango, Mary didn't want to dance ~~*t* with John~~.  
b. \* The waltz, John wanted to dance *t* with Mary; but the tango, Mary didn't want to do so.

The argument for structurally represented A'-movement is strengthened by its sensitivity to islands outside the ellipsis site (Haik 1987). Adding a wh-island to (24a) results in ungrammaticality in (26). The ungrammaticality of (27) follows likewise if (25a) is derived by A'-movement of John out of the ellipsis site.

- (26) \* I know which car John bought *t*, and which car Sarah asked why Mary did ~~buy~~-*t*.  
(27) \* The waltz, John wanted to dance *t* with Mary; but the tango, Susan asked why Mary didn't want to ~~dance *t* with John~~.

In any case, the empirical generalisation from the previous section — that participant switching VPE is licensed by symmetrical predicates — was a semantic one. The rest of this

chapter pursues an account of participant switching VPE in terms of the semantic identity condition discussed in the next section.<sup>13</sup>

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<sup>13</sup>Kehler (2000, 2002) argues that the acceptability of ellipsis mismatches tracks differences in discourse coherence relations. Cause-Effect relations are sensitive to semantic constraints; hence ellipsis mismatches in voice, nominalised/clausal structure, and vehicle change are all acceptable in Cause-Effect configurations. Resemblance relations, on the other hand, require syntactic parallelism between the antecedent and elided VPs; hence mismatches are unacceptable.

This section argued that syntactic identity does not hold in participant switching VPE; the next will argue that it is instead licensed by semantic parallelism. Given the centrality of a semantic constraint, and the absence of syntactic parallelism, Kehler's discourse coherence account predicts that participant switching VPE should be acceptable with Cause-Effect relations, but not Resemblance relations.

Participant switching VPE is indeed acceptable in Cause-Effect relations, such as Result in (i) or Explanation in (ii):

- (i) John<sub>1</sub> wanted to meet Mary<sub>2</sub>, and so she<sub>2</sub> didn't want to ~~meet him~~<sub>T</sub>.
- (ii) Mary<sub>2</sub> wanted to work with John<sub>1</sub>, because he<sub>1</sub> didn't want to ~~work with her~~<sub>2</sub>.

However, foundational examples such as (2), repeated here, show that participant switching VPE is also acceptable in a Resemblance relation; here Kehler's Contrast type one:

- (iii) John<sub>1</sub> wanted to dance with Mary<sub>2</sub>, but she<sub>2</sub> didn't want to ~~dance with him~~<sub>T</sub>.

Thus Kehler's discourse coherence account undergenerates with respect to the acceptability of participant switching VPE in Resemblance relations.

## 4 Semantic parallelism

We saw in section 2 that participant switching VPE conforms to the semantic generalisation that the predicate must be symmetrical. And we saw in the previous section that, in these semantically defined circumstances, participant switching VPE causes syntactic mismatches among direct objects and *with*-phrases. From the perspective of participant switching VPE, therefore, it is appropriate to pursue a semantic licensing condition for ellipsis.

This section outlines such a licensing condition. Semantic identity is widely held to consist in finding a ‘parallel’ antecedent that is one of the focus alternatives to a constituent containing ellipsis (section 4.1). However, there is evidence that semantic identity additionally involves contrast, requiring that the antecedent be a proper alternative to the constituent containing ellipsis (section 4.2). Section 5 will show how this identity condition accounts for participant switching VPE.

### 4.1 Parallelism as focus membership

Following Rooth (1992b), a great deal of research investigating the identity condition on VPE has hypothesised that ellipsis is subject to the focus membership condition in (28) (for example, Heim 1997; Fox 1999; Fox 2000: 85, ex. 16; Takahashi & Fox 2005):

(28) The focus membership condition:<sup>14</sup>

For  $\epsilon$  to be elided,  $\epsilon$  must be inside a phrase E that has an antecedent A such that:

$$\llbracket A \rrbracket \in F(E)$$

This condition requires that a phrase E containing an elided constituent  $\epsilon$  have an antecedent A; and that the ordinary semantic value of A be a member of the focus semantic value of

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<sup>14</sup>In this definition, *inside* is shorthand for non-proper containment; i.e.  $\epsilon$  can be dominated by E, as in (30) below, or  $\epsilon$  can be E, as in (31).



E, F(E). F(E) is calculated by replacing F(ocus)-marked constituents in E with things of the same type and collecting the results into a set. If E does not contain any F-marked constituents, F(E) is the singleton set containing the ordinary value of E. This condition is often termed the parallelism condition on ellipsis licensing, since it requires a phrase containing ellipsis to have a semantically ‘parallel’ antecedent:

To take a simple example, the focus membership condition correctly predicts ellipsis to be grammatical in (29):

(29) John left, and Bill did, too.

In fact, the focus membership condition makes a ‘doubly’ correct prediction for (29) (Rooth 1992b: exx. 22, 23; 32). For one, we can take A and E to be the main clauses of each conjunct. Assuming focus on  $BILL_F$ , focus membership is satisfied via this route in (30). Informally, John leaving is a member of the focus alternatives to Bill leaving — someone left:<sup>15</sup>

(30)	John left, and $BILL_F$ did $\epsilon$ , too.	$\epsilon = \textit{leave}$
	$E = BILL_F \textit{ left}$	$\llbracket E \rrbracket = \textit{leave}'(b)$
	$A = \textit{John left}$	$\llbracket A \rrbracket \in F(E)$

In detail, the elided constituent  $\epsilon$  is the predicate *leave*. Parallelism is evaluated at the clause level, setting E to  $BILL_F \textit{ left}$ . Since E contains a focused constituent, its focus value is the set of propositions where something leaves, for each thing in the domain of individuals. Setting A to *John left*, focus membership is satisfied, since the proposition that John left is one of the propositions that something left.

In addition to taking A and E to be the main clauses, focus membership can be satisfied just as well by taking A and E to be the VP of each conjunct, as in (31). Informally, leaving

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<sup>15</sup>I assume that verb phrase ellipsis targets ‘big-V’P rather than ‘little-v’P, if only to avoid unnecessary complications concerning vP-internal subjects.

is a member of the focus value of leaving — the singleton set containing leaving:

- |      |                                     |  |
|------|-------------------------------------|--|
| (31) | John left, and Bill did leave, too. | $\varepsilon = \text{leave}$   |
|      | $E = \text{leave}$                  | $\llbracket E \rrbracket = \text{leave}'$ $F(E) = \{ \text{leave}' \}$       |
|      | $A = \text{leave}$                  | $\llbracket A \rrbracket = \text{leave}'$ $\llbracket A \rrbracket \in F(E)$ |

The elided constituent  $\varepsilon$  is the predicate *leave*. This time parallelism is evaluated at the level of the elided material, setting  $E$  also to *leave*. Since  $E$  does not contain any focused constituents, its focus value is the singleton set containing its ordinary value. Setting  $A$  to *leave*, focus membership is satisfied trivially.

Thus the focus membership condition in (28) makes a ‘doubly’ correct prediction with respect to ellipsis in simple sentences like (29). Focus membership can be satisfied substantively, as in (30), where *leave'(j)* is one among the many members of the set  $\{ \text{leave}'(x) \mid x \in D_e \}$ ; or vacuously, as in (31), where *leave'* is a member — in fact, the only member — of the degenerate singleton set  $\{ \text{leave}' \}$ .

However, it has been claimed that there is more to semantic parallelism than focus membership alone. In particular, chapter 2 argued that semantic parallelism additionally requires contrast between the antecedent and the constituent containing ellipsis. Consequently,  $A$  cannot be the trivial member of  $F(E)$ , namely the ordinary meaning of  $E$ . Rather,  $A$  must be a proper alternative to  $E$ .<sup>16</sup> The next subsection brings this contrast requirement to light by reviewing some of the key data from chapter 2. Where (near-)trivial sentences eliminate contrasting material, ellipsis falls to contrast failure. Incorporating contrast will force revision of the parallelism calculations for (29), discarding (31) as a contrast failure. The increased complexity of the theory will stand us in good stead in accounting for participant switching VPE in section 5.

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<sup>16</sup>Cf. Rooth (1992a) for focus, discussed with respect to (36) below.

## 4.2 The contrast condition

There is reason to think that the focus membership condition from (28) needs to be strengthened by a contrast condition that requires A to be a proper alternative to E. As chapter 2 and Stockwell (2018) argue, focus membership alone makes incorrect predictions with respect to a pair like (32). While we can say trivial things, like the tautologous conditional in (32a), we cannot say the same sentence with ellipsis in (32b):

- (32) a. If John<sub>j</sub> is wrong, then he<sub>j</sub> is wrong.  
 b. \* If John<sub>j</sub> is wrong, then he<sub>j</sub> is ~~w~~rong.

If the focus membership condition from (28) is all there is to semantic parallelism, then ellipsis in (32b) is incorrectly predicted to be grammatical. As in (33), F-marking on *is* introduces polar focus alternatives, satisfying focus membership:

- (33) ✗ If John<sub>1</sub> is wrong, then he<sub>1</sub> is<sub>F</sub> ~~w~~rong.      ε = wrong  
 E = he<sub>1</sub> is<sub>F</sub> wrong      A = John<sub>1</sub> is wrong  
 ⟦E⟧ = wrong'(j)      ⟦A⟧ = wrong'(j)  
 F(E) = { wrong'(j), not-wrong'(j) }      ⟦A⟧ ∈ F(E)

In detail, parallelism is evaluated at the clause level, setting E to *he is<sub>F</sub> wrong*. Focus on *is<sub>F</sub>* introduces polar focus alternatives for E: *John is wrong*, *John is not wrong*. The antecedent *John is wrong* is indeed one of the members of this set, so the focus membership condition is satisfied.

The prediction for (32) can be corrected by subjecting ellipsis to a more stringent licensing condition than (28). In addition to focus membership, A and E must contrast. This contrast requirement is spelled out in (b) in the ellipsis parallelism condition in (34), whereby A and E must have distinct ordinary meanings (cf. Griffiths 2019):

(34) For  $\varepsilon$  to be elided,  $\varepsilon$  must be inside a phrase E that has an antecedent A such that:

- (a)  $[[A]] \in F(E)$  — the focus membership condition; and
- (b)  $[[A]] \neq [[E]]$  — the contrast condition.

This strengthened parallelism condition applies to the elliptical tautologous conditional from (32b) as in (35):

- (35) \* If John<sub>1</sub> is wrong, then he<sub>1</sub> is<sub>F</sub> ~~wrong~~.       $\varepsilon = \text{wrong}$   
           E = he<sub>1</sub> is<sub>F</sub> wrong                                      A = John<sub>1</sub> is wrong  
            $[[E]] = \text{wrong}'(j)$                                        $[[A]] = \text{wrong}'(j)$   
            $F(E) = \{ \text{wrong}'(j), \text{not-wrong}'(j) \}$        $[[A]] \in F(E)$  **but**  $[[A]] = [[E]]$

Focus membership continues to be satisfied, just as in (33). But the ordinary meanings of A and E are exactly the same, failing contrast. Thus (35) is correctly ruled out as a failure of ellipsis licensing — in particular, by the contrast condition.

Incorporating the contrast condition into the ellipsis parallelism condition in (34) follows the spirit of Rooth (1992b), who claims to be applying Rooth's (1992a) theory of focus directly to ellipsis licensing. Rooth (1992a: 90, 93) includes the contrast condition in his constraint on focus interpretation in (36). The constraint in (36) requires that a phrase  $\Phi$  containing focus have an antecedent A; that the ordinary semantic value of A be a member of  $F(\Phi)$ , the focus semantic value of  $\Phi$ ; and that A and  $\Phi$  must contrast, having distinct ordinary meanings:

- (36) Focus at the level of a phrase  $\Phi$  requires an antecedent A such that:
- (a)  $[[A]] \in F(\Phi)$ ; and
  - (b)  $[[A]] \neq [[\Phi]]$

Rooth (1992a) does not provide any empirical motivation for including the contrast condition in (36). Instead, Rooth (1992a: 90) acts out of a methodological concern to constrain

the theory as much as possible while retaining generality. With the elliptical tautologous conditional in (32b), however, we have a case where the contrast condition, as carried over from focus in (36), has empirical bite in ellipsis licensing.

As we saw in chapter 2, contrast has explanatory power in ellipsis beyond tautologous conditionals. Contrast failure can explain why ellipsis is bad in tautologous free relatives, as in (37):<sup>17</sup>

- (37) a. John eats what he eats.  
b. \* John eats what he does eat.

Likewise, ellipsis is impossible in sentences expressing iteration, as in (38). Repetition must be whole, whether of sentences (38a) or verb phrases (38c). Ellipsis in the corresponding (38b) and (38d) is ruled out by the contrast condition, as in (38e), since there is no available antecedent with a distinct meaning from the phrase containing ellipsis:

- (38) a. They talked and they talked and they talked.  
b. \* They talked and they did ~~talk~~ and they did ~~talk~~.  
c. They talked and talked and talked.  
d. \* They talked and did ~~talk~~ and did ~~talk~~.  
e. A = E = *they talk*

Furthermore, Griffiths (2019) argues that the contrast condition is responsible for so-called MaxElide effects, exemplified in (39). From a base sentence like (39a), sluicing is possible in (39b), but VP ellipsis is not in (39c). Using the theory of ellipsis parallelism in (34), Griffiths argues that ellipsis is not licensed in (39c) because the clause containing ellipsis does not contrast with its antecedent, along the lines of (39d):

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<sup>17</sup>Cf. Horn (1981: 326) and Russell's (1905) ambiguity in comparatives.

- (39) a. John will hire someone, but I don't know who he will hire *t*. No ellipsis  
 b. John will hire someone, but I don't know who ~~he will hire~~ *t*. Sluicing  
 c. \* John will hire someone, but I don't know who he will ~~hire~~ *t*. VPE  
 d. A = E = John will hire *x*

In sum, the contrast condition, which was introduced for focus by Rooth (1992a) for methodological considerations, has been shown in chapter two and by Stockwell (2018) and Griffiths (2019) to explain the ungrammaticality of non-contrasting ellipses. We will see that it has explanatory power with respect to participant switching VPE in section 5.4.

To conclude this section, let us consider how semantic parallelism, as strengthened by the contrast condition in (34), applies to the simple case of ellipsis from (29). The sentence and the two options for the level at which to evaluate parallelism are collected together in (40). The overall prediction of grammaticality is unchanged. But with the contrast condition, ellipsis is now licensed only if the full conjuncts are taken as A and E (40a), not just the VPs (40b). While both options continue to pass the focus membership condition, only the clause level for E (40a) satisfies contrast — informally, John leaving means something different from Bill leaving. Setting E to be the same as  $\epsilon$  (40b), on the other hand, fails to contrast — leave means leave:

- (40) John left, and  $BILL_F$  did leave, too.  $\epsilon = \text{leave}$
- |    |                   |  |  |
|----|-------------------|--|--|
| a. | E = $BILL_F$ left | $\llbracket E \rrbracket = \text{leave}'(b)$ | $F(E) = \{ \text{leave}'(x) \mid x \in D_e \}$   |
|    | A = John left     | $\llbracket A \rrbracket = \text{leave}'(j)$ | $\llbracket A \rrbracket \in F(E)$ <b>and</b> $\llbracket A \rrbracket \neq \llbracket E \rrbracket$ |
| b. | $\times$ E = left | $\llbracket E \rrbracket = \text{leave}'$    | $F(E) = \{ \text{leave}' \}$   |
|    | A = left          | $\llbracket A \rrbracket = \text{leave}'$    | $\llbracket A \rrbracket \in F(E)$ <b>but</b> $\llbracket A \rrbracket = \llbracket E \rrbracket$    |

With a semantic identity condition on ellipsis now in hand, comprising focus membership and contrast as in (34), the next section returns to participant switching VPE and shows how it can be accounted for in these terms.

## 5 Semantic identity in participant switching VPE

The previous section reviewed parallelism as focus membership and argued that it should be strengthened with contrast, arriving at the semantic identity condition on ellipsis in (34), repeated here:

- (34) For  $\epsilon$  to be elided,  $\epsilon$  must be inside a phrase  $E$  that has an antecedent  $A$  such that:
- (a)  $\llbracket A \rrbracket \in F(E)$  — the focus membership condition; and
  - (b)  $\llbracket A \rrbracket \neq \llbracket E \rrbracket$  — the contrast condition.

This section accounts for participant switching VPE in terms of (34), beginning with simple cases in section 5.1. Semantic identity in terms of focus membership correctly predicts that the participants must remain consistent across the symmetrical event, as shown in section 5.2; though the need to respect contrast motivates consideration of verum focus in section 5.3. Section 5.4 shows that participant switching is another area where the contrast condition has empirical bite in ellipsis licensing; albeit with some complications regarding negation, discussed in section 5.5.

### 5.1 Symmetry and focus membership

Participant switching VPE submits to the focus membership condition by virtue of the symmetry of the predicate; for example, *meet* in (41):

- (41) John<sub>1</sub> wanted to meet Mary<sub>2</sub>, and she<sub>2</sub> wanted to ~~meet him<sub>1</sub>~~, too.

The focus membership condition makes a ‘doubly’ correct prediction that ellipsis will be licensed in (41), but in a slightly different way than in (40). Notice first that evaluating parallelism at the level of the elided material, as we did in (40b), fails for (41) as in (42). Informally, a meeting involving Mary is not a member of the set containing a meeting involving John:

(42) ✗ John<sub>1</sub> wanted to meet Mary<sub>2</sub>, and she<sub>2</sub> wanted to ~~meet him~~<sub>T</sub>, too.

$\varepsilon = \text{meet him}_1$

A = meet Mary                       $\llbracket A \rrbracket = \lambda x. \text{meet}'(x,m)$

E = meet John                       $\llbracket E \rrbracket = \lambda x. \text{meet}'(x,j)$

F(E) = {  $\lambda x. \text{meet}'(x,j)$  }               $\llbracket A \rrbracket \notin F(E)$

Still, evaluating parallelism at either the embedded or main or clause level will succeed in satisfying focus membership. In both cases, the symmetry of *meet* is crucial. We begin with the embedded clause level in (43). Informally, John meeting Mary, which by symmetry means the same as Mary meeting John, is a member of the set containing Mary meeting John:<sup>18</sup>

(43) John<sub>1</sub> wanted to meet Mary<sub>2</sub>, and she<sub>2</sub> wanted to ~~meet him~~<sub>T</sub>, too.

$\varepsilon = \text{meet him}_1$

A = PRO<sub>j</sub> to meet Mary               $\llbracket A \rrbracket = \text{meet}'(j,m) = \text{meet}'(m,j)$

E = PRO<sub>m</sub> to meet John               $\llbracket E \rrbracket = \text{meet}'(m,j)$

F(E) = {  $\text{meet}'(m,j)$  }               $\llbracket A \rrbracket \in F(E)$

The elided constituent  $\varepsilon$  is *meet him*<sub>1</sub>. Parallelism is evaluated at the level of embedded clause, setting E to *PRO<sub>m</sub> to meet him*<sub>1</sub>. Since E does not contain any focus, its focus value is the singleton set containing its ordinary value. Setting A to *PRO<sub>j</sub> to meet Mary*, focus membership is satisfied based on the trivial singleton, since by symmetry  $\llbracket A \rrbracket = \llbracket E \rrbracket$ .

However, in the same breath as supporting focus membership, symmetry causes contrast failure. The equivalence of John meeting Mary and Mary meeting John makes *meet'(j,m)* a

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<sup>18</sup>Focus membership holds in (43) by taking *PRO* to contribute its referent. Otherwise, focus membership would fail just as in (42). Further discussion of *PRO* is postponed to footnote 19, following the contrast-respecting licensing calculations in (45).



member of  $\{ \text{meet}'(m,j) \}$ ; but at the same time results in A and E failing to contrast, as spelled out in (44):

$$(44) \quad \llbracket A \rrbracket = \text{meet}'(j,m) \\ = \llbracket E \rrbracket = \text{meet}'(m,j)$$

Drawn up against the parallelism condition in (34), as strengthened by contrast, the choice of the embedded clauses as A and E in (43) thus falls short. Just as the contrast condition forced us to evaluate parallelism at a higher level in the simple case of ellipsis in (40), failure to satisfy contrast on the embedded clauses in (43) forces us to look to the higher clauses when evaluating parallelism in participant switching VPE.

Happily, focus membership is also satisfied by evaluating parallelism at the level of the higher clause, assuming focus on *SHE* as in (45). Intuitively, focus on *SHE* sets up a contrast between John and Mary with respect to wanting to meet the other:

$$(45) \quad \text{John}_1 \text{ wanted to meet Mary}_2, \text{ and SHE}_{2,F} \text{ wanted to } \text{meet-him}_T, \text{ too.} \\ \varepsilon = \text{meet him}_1 \\ A = \text{John want PRO}_j \text{ meet Mary} \\ \llbracket A \rrbracket = \text{want}'(\text{meet}'(j,m))(j) = \text{want}'(\text{meet}'(m,j))(j) \\ E = \text{MARY}_F \text{ want PRO}_m \text{ meet John} \quad \llbracket E \rrbracket = \text{want}'(\text{meet}'(m,j))(m) \\ F(E) = \{ \text{want}'(\text{meet}'(m,j))(x) \mid x \in D_e \} \quad \llbracket A \rrbracket \in F(E) \text{ and } \llbracket A \rrbracket \neq \llbracket E \rrbracket$$

The elided constituent  $\varepsilon$  remains *meet him<sub>1</sub>*. Parallelism is evaluated at the level of the entire conjunct of each clause, setting E to *MARY<sub>F</sub> want PRO<sub>m</sub> to meet him<sub>1</sub>*. E contains focus on the subject, so its focus value is the set of all propositions of someone wanting Mary and John to meet. Setting A also at the full clause level, focus membership is satisfied based on symmetry in the embedded VP: just as John meeting Mary means the same as Mary meeting John, so John wanting a meeting between John and Mary means the same as John wanting a

meeting between Mary and John.<sup>19</sup> The parallelism calculation in (45) satisfies the contrast condition in addition to focus membership. John wanting a John and Mary meeting is not the same as Mary wanting one, as spelled out in (46):

$$(46) \quad \llbracket A \rrbracket = \text{want}'(\text{meet}'(j,m))(j) = \text{want}'(\text{meet}'(m,j))(j) \\ \neq \llbracket E \rrbracket = \text{want}'(\text{meet}'(m,j))(m)$$

Taking stock, focus membership alone makes a ‘doubly’ correct prediction with respect to ellipsis in participant switching sentences like (41). Focus membership can be satisfied vacuously, as in (43), where  $\text{meet}'(j,m)$  is the only member of the degenerate singleton set  $\{ \text{meet}'(j,m) \}$ ; or it can be satisfied substantively, as in (45), where  $\text{want}'(\text{meet}'(m,j))(j)$  is one among the many members of the set  $\{ \text{want}'(\text{meet}'(m,j))(x) \mid x \in D_e \}$ . Semantic parallelism as strengthened by the contrast condition in (34) does not change the overall prediction for participant switching VPE; while the calculation in (43) fails, ellipsis is successfully licensed based on (45). However, the contrast condition will have accurate empirical bite in more complex cases of participant switching VPE, below.

The symmetry of the predicate was crucial to satisfying focus membership. Attempting participant switching VPE with a non-symmetrical predicate like *criticise* fails the focus membership condition, correctly predicting ungrammaticality in (47). Focus membership fails regardless of the level at which parallelism is evaluated. Informally, evaluating parallelism at the level of the elided material fails in (47a) because criticising Mary is not a

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<sup>19</sup>As previewed in footnote 18, focus membership only holds in (43) if *PRO* is taken to contribute its referent. Strictly speaking, obligatory control *PRO* does not directly contribute a referent, but is interpreted *de se*, contributing candidates for who the attitude holder takes themselves to be. It is apparently sufficient for ellipsis licensing that focus membership holds via symmetry based on *PRO* contributing as a referent the ‘best counterpart’ of John — namely John, as in (45). Taking account of the *de se* semantics of *PRO*, focus membership would fail. Abstracting away from world variables, this point is made in (i):



(47) \* John<sub>1</sub> wanted to criticise Mary<sub>2</sub>, but she<sub>2</sub> didn't want to  
criticise him<sub>1</sub>.

- |    |   |  |
|----|---|--|
| a. | A = criticise Mary                                | $\llbracket A \rrbracket = \lambda x. \text{criticise}'(m)(x)$                   |
|    | E = criticise John                                | $\llbracket E \rrbracket = \lambda x. \text{criticise}'(j)(x)$                   |
|    | $F(E) = \{ \lambda x. \text{criticise}'(j)(x) \}$ | $\llbracket A \rrbracket \notin F(E)$  |
| b. | A = PRO <sub>j</sub> to criticise Mary            | $\llbracket A \rrbracket = \text{criticise}'(m)(j) \neq \text{criticise}'(j)(m)$ |
|    | E = PRO <sub>m</sub> to criticise John            | $\llbracket E \rrbracket = \text{criticise}'(j)(m)$                              |
|    | $F(E) = \{ \text{criticise}'(j)(m) \}$            | $\llbracket A \rrbracket \notin F(E)$  |

In sum, symmetry preserves semantic parallelism in spite of participant switching. Focus membership goes through in (45) at the main clause level, which also satisfies contrast. Without symmetry, participant switching is correctly ruled out as focus membership failure. The rest of this section shows how focus membership and contrast interact to correctly rule in and rule out participant switching VPE in more complicated circumstances, beginning with the obligatoriness of participant switching in the next subsection.

## 5.2 Obligatory switching

The symmetrical co-participants must remain constant across antecedent and ellipsis in participant switching VPE. Recall (16) from above:

(16) Bill<sub>3</sub> expected John<sub>1</sub> to work with Mary<sub>2</sub>, and (in the end) she<sub>2</sub> DID<sub>F</sub>  
~~work with him<sub>1</sub>~~.

Notice now that the meaning indicated in (16) is the only one available. In particular, despite the sentence providing another potential antecedent in Bill, the elided pronoun *him* must refer to John. Taking *him* to refer to Bill, as indicated in (48), is ungrammatical:

(48) \* Bill<sub>3</sub> expected John<sub>1</sub> to work with Mary<sub>2</sub>, and (in the end) she<sub>2</sub> DID<sub>F</sub>  
~~work with him<sub>3</sub>~~.

The attempt to bring out the ‘Bill reading’ in (49) accordingly fails. The ‘John reading’ is the only grammatical possibility, but is odd in this context:

(49) ?? Bill<sub>3</sub> really liked Mary<sub>2</sub>, but he expected John<sub>1</sub> to work with her<sub>2</sub>.

Though as it turned out, she<sub>2</sub> DID<sub>F</sub> ~~work with him~~?17\*3!

The obligatoriness of participant switching is predicted by semantic identity, implemented as in (34) in terms of focus membership. As sketched in (50), focus membership goes through for (16) on the ‘John reading’ (a), but not the ‘Bill reading’ (b):

(50) a.  $\text{work-with}'(j,m) \in \{ \text{work-with}'(m,j) \}$ , since

$\text{work-with}'(j,m) = \text{work-with}'(m,j)$

b.  $\text{work-with}'(j,m) \notin \{ \text{work-with}'(m,b) \}$ , since

$\text{work-with}'(j,m) \neq \text{work-with}'(m,b)$

As ever with participant switching VPE, symmetry is the crucial factor. Focus membership is mediated via symmetry, and the relevant equalities hold only if the participants remain the same. John working with Mary means the same as Mary working with John, but does not mean the same as Mary working with Bill. Hence the symmetrical co-participants must remain constant across A and E.

The calculations in (50) imply taking A to be the clausal complement of *expect*, and E to be the second conjunct. Evaluating parallelism at this level would fail contrast, as was the case for (43) in (44). A contrast-respecting analysis of (16) will be possible after taking account of VERUM focus in the next subsection.

### 5.3 Focus on VERUM

In the first subsection, participant switching was licensed for ellipsis of the lower VP. Ellipsis of the higher VP including *want* is licensed in the same way in (51), based on the same size A and E:

(51) John<sub>1</sub> wanted to work with Mary<sub>2</sub>, and SHE<sub>2,F</sub> did ~~want to work with him<sub>T</sub>~~, too.

$\varepsilon = \text{want to work with him}_1$

A = John want PRO<sub>j</sub> work with Mary

$\llbracket A \rrbracket = \text{want}'(\text{work-with}'(j,m))(j) = \text{want}'(\text{work-with}'(m,j))(j)$

E = MARY<sub>F</sub> want PRO<sub>m</sub> work with John                       $\llbracket E \rrbracket = \text{want}'(\text{work-with}'(m,j))(m)$

F(E) = { want'(work-with'(m,j))(x) | x ∈ D<sub>e</sub> }               $\llbracket A \rrbracket \in F(E)$  **and**  $\llbracket A \rrbracket \neq \llbracket E \rrbracket$

However, with focus on *DID* rather than *SHE*, we are able to interpret the ellipsis site as containing just the lower VP of the first clause, to the exclusion of *want*. In (52), there is only one option for E that passes focus membership, namely the whole second conjunct. But any attempt to evaluate parallelism that sets A to the lower clause of the first conjunct, which is the same syntactic size as E, will inevitably fall to a contrast failure:

(52) ✗ John<sub>1</sub> wanted to work with Mary<sub>2</sub>, and (in the end) she<sub>2</sub> DID<sub>F</sub> ~~work with him<sub>T</sub>~~.

$\varepsilon = \text{work with him}_1$

A = PRO<sub>j</sub> to work with Mary               $\llbracket A \rrbracket = \text{work-with}'(j,m) = \text{work-with}'(m,j)$

E = Mary work with John               $\llbracket E \rrbracket = \text{work-with}'(m,j)$

$\llbracket A \rrbracket = \llbracket E \rrbracket$

A solution to correctly ruling in (52) while respecting the contrast condition lies in taking full account of focus on *DID*. Stress on an auxiliary can signal polar focus (Höhle 1992), where the alternatives are the truth or falsity of the proposition, as was assumed in the discussion of tautologous conditionals in section 4.2 above. But stress on an auxiliary can also signal focus not on polarity, but a predicate operator VERUM, introduced by Romero & Han (2004), which means roughly ‘it is for sure that’.<sup>21</sup> Focus on VERUM contributes alternatives to the proposition being for-sure true: the proposition is merely possible, or

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<sup>21</sup>More precisely, VERUM is a conversational epistemic operator which asserts that the speaker is certain that p should be added to the Common Ground. In the definition in (i)

someone expects or wants or hopes it to be true or not true, etc. The focus set of alternatives of this modal-like operator VERUM is sketched in (53) (Hardt & Romero 2004: 405, ex. 97):

- (53)  $F(\text{VERUM}_F p) = \{ \text{it is for sure true that } p, \text{ it is possible that } p, \text{ it is hoped that } p, \text{ it is doubted that } p, \text{ it is wanted that } p, \text{ it is expected that } p, \dots, \text{ John expects that } p, \text{ John hopes that } p, \text{ Sam expects that } p, \dots, \text{ it is for sure true that } \neg p, \text{ it is possible that } \neg p, \text{ it is hoped that } \neg p, \text{ it is doubted that } \neg p, \text{ it is wanted that } \neg p, \text{ it is expected that } \neg p, \dots, \text{ John expects that } \neg p, \text{ John hopes that } \neg p, \text{ Sam expects that } \neg p, \dots \}$

To illustrate first without ellipsis, consider (54) (Hardt & Romero 2004: 405, ex. 94). Focus on *DID* does not signal contrast with the polarity of the previous clause, since both A's statement and S's response are positive in polarity. Instead, auxiliary stress marks contrast between the operator VERUM and the attitude expressed by A, namely *I hope*:

- (54) A: I hope she finished her work on time.  
 S: She *DID* finish it on time.  
 LF of S: [ $\text{VERUM}_F$  [she finished it on time]]

To add in ellipsis, consider (55) (Hardt & Romero 2004: 406, ex. 99). Focus membership

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(Romero & Han 2004: 627, ex. 43),  $x$  is a free variable whose value is contextually identified with the addressee (or the individual sum of the addressee and the speaker);  $\text{Epi}_x(w)$  is the set of worlds that conform to  $x$ 's knowledge in  $w$ ;  $\text{Conv}_x(w')$  is the set of worlds where all the conversational goals of  $x$  in  $w'$  are fulfilled (e.g., attain maximal information while preserving truth); and  $\text{CG}_{w''}$  is the Common Ground, or set of propositions that the speakers assume in  $w''$  to be true (Stalnaker 1978):

- (i)  $\llbracket \text{VERUM}_i \rrbracket^{g^x/i} = \llbracket \text{really}_i \rrbracket^{g^x/i} =$   
 $\lambda p_{st} \lambda w. \forall w' \in \text{Epi}_x(w) [\forall w'' \in \text{Conv}_x(w') [p \in \text{CG}_{w''} ] ]$

is satisfied via VERUM. Informally, John wanting to go to Rome is an alternative to John not actually going to Rome. The contrast condition is also satisfied — John wanting to go to Rome is different from it not actually happening:<sup>22</sup>

(55) John wanted to go to Rome, but he DIDN'T.

$\llbracket [\text{John wanted to go to Rome}] \rrbracket \in F([\text{he DIDN'T go to Rome}]) =$

{ it is for sure true that John did not go to Rome, it is for sure true that John went to Rome, ..., John wanted that John goes to Rome, John wanted that John doesn't go to Rome, ... }

Armed with VERUM, the failed attempt at licensing participant switching VPE in (52) can be revised as in (56). Intuitively, focus on *DID* sets up a contrast between John's desires and the actual state of affairs. Setting A to be the whole first conjunct is necessary to satisfy focus membership among the alternatives to VERUM. Informally, John wanting a John and Mary collaboration is an alternative to a John and Mary collaboration actually taking place. Setting A to include *John wants* also resolves the contrast problem, since A and E now mean very different things — John wanting to collaborate with Mary is different from him actually doing so:

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<sup>22</sup>Hardt & Romero (2004: 406, ex. 99) take PRO to contribute its referent, without comment. The meaning of A = [John wanted PRO to go to Rome] is in F(E) courtesy of an alternative to E being [John wanted that John goes to Rome]. Recall note 19.



(56) John<sub>1</sub> wanted to work with Mary<sub>2</sub>, and (in the end) she<sub>2</sub> DID<sub>F</sub> ~~work with him<sub>1</sub>~~.

$\varepsilon$  = work with him<sub>1</sub>

A = John wanted PRO<sub>j</sub> to work with Mary

$\llbracket A \rrbracket$  = want'(work-with'(j,m))(j) = want'(work-with'(m,j))(j)

E = VERUM<sub>F</sub> Mary work with John       $\llbracket E \rrbracket$  = for-sure'(work-with'(m,j))

F(E) = { it is for sure true that Mary worked with John, it is possible that Mary worked with John, ..., Sue wanted/expected that Mary worked with John,

John wanted that Mary worked with John, ... }

$\llbracket A \rrbracket \in F(E)$  and  $\llbracket A \rrbracket \neq \llbracket E \rrbracket$

We are now in a position to give a contrast-respecting account of (16). As discussed in the previous subsection, the symmetrical co-participants must remain constant across A and E for focus membership to go through. Contrast is satisfied in (57) along the same lines as in (56), via VERUM. Bill expecting a John and Mary collaboration is a proper alternative to such a collaboration actually taking place:

(57) Bill<sub>3</sub> expected John<sub>1</sub> to work with Mary<sub>2</sub>, and (in the end) she<sub>2</sub> DID<sub>F</sub>

~~work with him<sub>1</sub>~~.

$\varepsilon$  = work with him<sub>1</sub>

A = Bill expected John to work with Mary

$\llbracket A \rrbracket$  = expect'(work-with'(j,m))(b) = expect'(work-with'(m,j))(b)

E = VERUM<sub>F</sub> Mary work with John       $\llbracket E \rrbracket$  = for-sure'(work-with'(m,j))

F(E) = { it is for sure true that Mary worked with John, it is possible that Mary worked with John, ..., Sue wanted/expected that Mary worked with John,

John wanted that Mary worked with John, ..., Sue expected that

Mary didn't work with John, Bill expected that Mary worked with John, ... }

$\llbracket A \rrbracket \in F(E)$  and  $\llbracket A \rrbracket \neq \llbracket E \rrbracket$

With focus on modal-like VERUM supporting focus membership, we expect participant

switching VPE to be good with all other intensional embedding, which supplies members of the set of focus alternatives to VERUM. Further to embedding under an intensional verb like *want*, other intensional operators work just as well in (58), including a modal auxiliary like *should* (58a), or another partial control predicate like *resolve* (Pearson 2016) (58b):<sup>23</sup>

- (58) a. A: John<sub>1</sub> should have danced with Mary<sub>2</sub>.  
B: Wait, but she<sub>2</sub> DID<sub>F</sub> ~~dance with him<sub>T</sub>~~!
- b. John<sub>1</sub> resolved to dance with Mary<sub>2</sub>, and eventually she<sub>2</sub> DID<sub>F</sub> ~~dance with him<sub>T</sub>~~.

Non-intensional embedding under an extensional aspectual verb like *start* (Pearson 2016), on the other hand, does not support participant switching VPE in (59):

- (59) \* John<sub>1</sub> started to dance with Mary<sub>2</sub>, and she<sub>2</sub> DID<sub>F</sub> ~~dance with him<sub>T</sub>~~.

Focus membership failure is responsible for the ungrammaticality of (59). Alternatives to VERUM are inherently intensional, encompassing desires or possibilities; whereas *start* is about the extent to which something actually happened. Hence *John start* is not a member of F(VERUM<sub>F</sub>). Thus the attempt at participant switching ellipsis in (59) is a focus membership failure, just as much as the attempt at plain ellipsis in (60):

- (60) \* John<sub>1</sub> started to work, and he<sub>1</sub> DID<sub>F</sub> ~~work~~.

In sum, the contrast condition can be respected in participant switching VPE via focus on VERUM, which in turn explains the restriction to intensional embedding. The rest of this section presents examples where participant switching VPE fails the contrast condition, and considers an exceptional case involving negation.

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<sup>23</sup>See also the various verbs in the examples in (6)-(9) from section 2.

## 5.4 Contrast failures

Even after taking account of VERUM, it remains eminently possible for participant switching VPE to fail the contrast condition. In (57) contrast was satisfied by the opposition between Bill wanting Mary and John to collaborate, and such a collaboration actually taking place. This contrast relied on the high scope of conjunction, with *want* only in the first conjunct. The potential for contrast to arise along these lines is removed in (61). Conjunction scopes low, with both conjuncts embedded under *Bill expected*. The sentence in (61a) might be redundant, but it is perfectly grammatical. The attempt at participant switching VPE in (61b), on the other hand, is ungrammatical. In this configuration, both or neither of A and E will include *Bill expected*, resulting in contrast failure:

- (61) a. Bill<sub>3</sub> expected both for John<sub>1</sub> to work with Mary<sub>2</sub>, and for her<sub>2</sub> to work with him<sub>1</sub>.
- b. \* Bill<sub>3</sub> expected both for John<sub>1</sub> to work with Mary<sub>2</sub>, and for her<sub>2</sub> to ~~work with him<sub>1</sub>~~.

The same point can be made without adding *Bill* as an attitude holder separate from the symmetrical event. In (62), the fully pronounced (62a) may be very redundant, but is perfectly grammatical; whereas the attempt at participant switching VPE in (62b) is completely ungrammatical. Again, both or neither of A and E will include *John wanted*, resulting in contrast failure:

- (62) a. John<sub>1</sub> wanted both to meet Mary<sub>2</sub>, and for her<sub>2</sub> to meet him<sub>1</sub> (, too).
- b. \* John<sub>1</sub> wanted both to meet Mary<sub>2</sub>, and for her<sub>2</sub> to ~~meet him<sub>1</sub>~~ (, too).

Arriving now at full-blown redundancy, the contrast condition is also responsible for the divergent judgements in (63). While the fully pronounced (63a) is perfectly grammatical, the attempt at participant switching VPE in (63b) is ruled out as a contrast failure. By symmetry, John and Mary dancing means the same as Mary and John dancing:

- (63) a. John<sub>1</sub> danced with Mary<sub>2</sub>, and she<sub>2</sub> danced with him<sub>1</sub>.  
 b. \* John<sub>1</sub> danced with Mary<sub>2</sub>, and she<sub>2</sub> did ~~dance with him<sub>1</sub>~~.

The next subsection adds negation into the mix. For the grammatical examples of participant switching VPE we have treated so far, the analysis will remain substantially the same. But for the ungrammatical contrast failures, there will be more to say about the contribution of negation. Negation generally counts for satisfying contrast, and in participant switching VPE suffices to make the elliptical negative versions of (61) and (62) grammatical in (64a) and (64b). Yet adding negation to (63) does not rescue ellipsis in (64c):

- (64) a. Bill<sub>3</sub> wanted both for John<sub>1</sub> to work with Mary<sub>2</sub>, and for her<sub>2</sub> NOT to ~~work with him<sub>1</sub>~~.  
 b. John<sub>1</sub> wanted both to meet Mary<sub>2</sub>, and for her<sub>2</sub> NOT to ~~meet him<sub>1</sub>~~.  
 c. \* John<sub>1</sub> danced with Mary<sub>2</sub>, but she<sub>2</sub> didn't ~~dance with him<sub>1</sub>~~.

## 5.5 Negation and contrast

The grammatical examples of participant switching VPE in this section so far, collected in (65), were positive polarity in both conjuncts:

- (65) a. John<sub>1</sub> wanted to meet Mary<sub>2</sub>, and SHE<sub>2,F</sub> wanted to meet him<sub>1</sub>, too. = (45)  
 b. John<sub>1</sub> wanted to work with Mary<sub>2</sub>, and SHE<sub>2,F</sub> did ~~want to work with him<sub>1</sub>~~, too. = (51)  
 c. John<sub>1</sub> wanted to work with Mary<sub>2</sub>, and (in the end) she<sub>2</sub> DID<sub>F</sub> ~~work with him<sub>1</sub>~~. = (56)  
 d. Bill<sub>3</sub> wanted John<sub>1</sub> to work with Mary<sub>2</sub>, and (in the end) she<sub>2</sub> DID<sub>F</sub> ~~work with him<sub>1</sub>~~. = (57)

All the sentences in (65) remain grammatical with negative polarity in the second conjunct, as in (66), with F-marked *DIDN'T* and concomitant changes from *and ... too* to *but*:

- (66) a. John<sub>1</sub> wanted to meet Mary<sub>2</sub>, but SHE<sub>2,F</sub> DIDN'T<sub>F</sub> want to meet him<sub>T</sub>.
- b. John<sub>1</sub> wanted to work with Mary<sub>2</sub>, but SHE<sub>2,F</sub> DIDN'T<sub>F</sub> want to work with him<sub>T</sub>.
- c. John<sub>1</sub> wanted to work with Mary<sub>2</sub>, but (in the end) she<sub>2</sub> DIDN'T<sub>F</sub> work with him<sub>T</sub>.
- d. Bill<sub>3</sub> wanted John<sub>1</sub> to work with Mary<sub>2</sub>, but (in the end) she<sub>2</sub> DIDN'T<sub>F</sub> work with him<sub>T</sub>.

The semantic parallelism condition in (34) based on focus membership plus contrast correctly predicts all the sentences in (66) to be grammatical. Beginning with (66a) and (66b), which include *want* in the second conjunct, ellipsis is licensed regardless of its size as in (67):

- (67) John<sub>1</sub> wanted to work with Mary<sub>2</sub>, but SHE<sub>2,F</sub> DIDN'T<sub>F</sub> { ~~want to work with him<sub>T</sub>~~ / ~~want to work with him<sub>T</sub>~~ }.
- $\varepsilon = (\text{want to}) \text{ work with him}_1$
- $A = \text{John want PRO}_j \text{ work with Mary}$
- $\llbracket A \rrbracket = \text{want}'(\text{work-with}'(j,m))(j) = \text{want}'(\text{work-with}'(m,j))(j)$
- $E = \text{MARY}_F \text{ DIDN'T}_F \text{ want PRO}_m \text{ work with John}$
- $\llbracket E \rrbracket = \text{not-want}'(\text{work-with}'(m,j))(m)$
- $F(E) = \{ \text{want}'(\text{work-with}'(m,j))(x), \text{not-want}'(\text{work-with}'(m,j))(x) \mid x \in D_e \}$
- $\llbracket A \rrbracket \in F(E) \text{ and } \llbracket A \rrbracket \neq \llbracket E \rrbracket$

The elided constituent  $\varepsilon$  is *(want to) work with him<sub>1</sub>*. Parallelism is evaluated at the level of the entire conjunct of each clause. Where  $A$  is the same as before,  $E$  now includes

focus-marking on *DIDN'T* in addition to the subject. Taking *DIDN'T* to evoke polar focus alternatives rather than focus on VERUM suffices here, making the focus value of E the set of all propositions of someone wanting or not wanting Mary and John to collaborate. Focus membership is satisfied based on symmetry and polar alternatives. In addition, contrast is satisfied by John wanting a John and Mary collaboration being different from Mary *not* wanting a John and Mary collaboration.

Indeed, negation very generally provides a way to satisfy the contrast condition, in that the difference between a positive and negative version of the same proposition suffices for contrast. The previous chapter showed that negation counts for contrast even when eliding in trivial sentences like the tautologous disjunction in (68) or the contradictory conjunction in (69):

(68) Either John<sub>1</sub> is wrong, or he<sub>1</sub> isn't ~~wrong~~.

(69) John<sub>1</sub> is wrong and he<sub>1</sub> isn't ~~wrong~~.

Including negation in ellipsis licensing calculations — in particular, including *not* as part of E — the semantic parallelism condition on ellipsis from (34) correctly predicts both (68) and (69) to be grammatical as in (70). Focus on *ISN'T* evokes polar alternatives, while the opposition of a positive A and negative E satisfies the contrast condition:

(70) E = he <sub>1</sub> ISN'T <sub>F</sub> wrong	A = John <sub>1</sub> is wrong
[[E]] = not-wrong'(j)	[[A]] = wrong'(j)
F(E) = { wrong'(j), not-wrong'(j) }	[[A]] ∈ F(E), [[A]] ≠ [[E]]

Thus, unlike with the elliptical tautologous conditional (32b) in (35), the contrast condition is satisfied, and (68) and (69) are correctly predicted to be grammatical.<sup>24</sup>

Turning now to (66c) and (66d) without *want* in the second conjunct, the analysis is the same regardless of whether or not the attitude holder in the first conjunct is included in the symmetrical event. As for the versions of these examples with *DID* in (56) and (57) above, we take accent on *DIDN'T* to signal focus on VERUM. Illustrating for (66c) in (71), John (or Bill for (66d)) wanting a John and Mary collaboration is an alternative to a John and Mary collaboration not actually taking place:

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<sup>24</sup>The other contrast condition failures surveyed in section 4.2 are also rescued by contrast between positive and negative, as shown in (i) for iteration (38) and in (ii) so-called MaxElide effects (39):

- (i) They talked and they DIDN'T<sub>F</sub> talk and they DID<sub>F</sub> talk.
- (ii) John will kiss someone, but I don't know who he SHOULDN'T<sub>F</sub> kiss-*t*.

Any ameliorating effect of negation in satisfying contrast for ellipsis licensing in contradictory versions of the conditional from (32) and the free relative from (37) would be very difficult to detect, since the fully pronounced versions in (iii) and (iv) are so nonsensical:

- (iii) # If John left, then he didn't leave.
- (iv) # John eats what he doesn't eat.

(71) John<sub>1</sub> wanted to work with Mary<sub>2</sub>, but (in the end) she<sub>2</sub> DIDN'T<sub>F</sub>  
~~work with him<sub>T</sub>~~.

$\epsilon$  = work with him<sub>1</sub>

A = John wanted PRO<sub>j</sub> to work with Mary

$\llbracket A \rrbracket$  = want'(work-with'(j,m))(j) = want'(work-with'(m,j))(j)

E = VERUM<sub>F</sub> not Mary work with John

$\llbracket E \rrbracket$  = for-sure'(not-work-with'(m,j))

F(E) = { it is for sure not true that Mary worked with John, it is possible that  
 Mary worked with John, ..., John wanted that Mary worked with John, ... }

$\llbracket A \rrbracket \in F(E)$  and  $\llbracket A \rrbracket \neq \llbracket E \rrbracket$

Thus the theory naturally accommodates negated versions of the grammatical data analysed in earlier in this section.

We now turn to the ungrammatical contrast failures in (61)-(63), which we predict should be rescued by negation. For (61) and (62), this prediction is borne out in (72) and (73). There is no additional unacceptability in going from the fully pronounced sentences in (a) to the elliptical versions in (b):

(72) a. Bill<sub>3</sub> wanted both for John<sub>1</sub> to meet Mary<sub>2</sub>, and for her<sub>2</sub> NOT<sub>F</sub> to meet him<sub>1</sub>.

b. Bill<sub>3</sub> wanted both for John<sub>1</sub> to meet Mary<sub>2</sub>, and for her<sub>2</sub> NOT<sub>F</sub> to ~~meet him<sub>T</sub>~~.

(73) a. John<sub>1</sub> wanted (both) to meet Mary<sub>2</sub>, and for her<sub>2</sub> NOT<sub>F</sub> to meet him<sub>1</sub>.

b. John<sub>1</sub> wanted (both) to meet Mary<sub>2</sub>, and for her<sub>2</sub> NOT<sub>F</sub> to ~~meet him<sub>T</sub>~~.

The contrast between positive and negative means parallelism can be successfully evaluated at the level of the embedded clauses based on polar focus, as in (74):



(74)  $\varepsilon = \text{meet him}_1$

A = John to meet Mary

$\llbracket A \rrbracket = \text{meet}'(j,m) = \text{meet}'(m,j)$

E = Mary NOT<sub>F</sub> to meet John

$\llbracket E \rrbracket = \text{not-meet}'(m,j)$

$F(E) = \{ \text{meet}'(m,j), \text{not-meet}'(m,j) \}$

$\llbracket A \rrbracket \in F(E), \llbracket A \rrbracket \neq \llbracket E \rrbracket$

Arriving now at triviality, however, negation does not rescue the contrast failure from (63), as shown in (75). The fully pronounced (75a) is a contradictory but perfectly grammatical sentence. Unlike for (63), the attempt at participant switching VPE in (75b) remains ungrammatical, despite the opposition between positive A and negative E:

(75) a. # John<sub>1</sub> danced with Mary<sub>2</sub>, but she<sub>2</sub> didn't dance with him<sub>1</sub>.

b. \* John<sub>1</sub> danced with Mary<sub>2</sub>, but she<sub>2</sub> didn't ~~dance with him<sub>1</sub>~~.

The degraded status of (75b) is even starker across speakers. The infelicity of sentence-internal contradiction is diffused across different speakers' utterances in an exchange like (76) (cf. 69). Yet (75b) remains bad, even when spread across the exchange in (77):

(76) A: John<sub>1</sub> is wrong.

B: But he<sub>1</sub> isn't ~~wrong~~.

(77) A: John<sub>1</sub> danced with Mary<sub>2</sub>.

B: \* But she<sub>2</sub> didn't ~~dance with him<sub>1</sub>~~.

The overall empirical picture is that negation counts for contrast in ellipsis parallelism in general, including in participant switching VPE in (61) and (62); just not in (75) and the related (77). What makes these the odd ones out is that the assertion contradicts the ellipsis licensing calculations. The licensing of participant switching VPE makes crucial use of the symmetry of the predicate in satisfying focus membership. That is, the ellipsis is licensed for (75b) based on the equivalence spelled out in (78):

(78)  $\text{dance-with}'(j,m) = \text{dance-with}'(m,j)$

At the same time, however, (75) asserts that this equality does not hold, as in (79):

(79)  $\text{dance-with}'(j,m) \neq \text{dance-with}'(m,j)$

There is thus a conflict between ellipsis licensing, which requires symmetrical equality, and the sentence, which asserts inequality. In other words, (75) contradicts the route to its own construction. Such ‘internal contradiction’ results in ungrammaticality.<sup>25</sup> Compare (72) and (73), where embedding under *want* avoids directly asserting the inequality in (79).<sup>26</sup>

To summarise this section, the semantic identity condition motivated in section 4, comprising focus membership and contrast, accurately accounts for participant switching VPE. Symmetry preserves focus membership, despite syntactic changes between antecedent and ellipsis, and enforces consistency of the participants across A and E. The contrast condition urges consideration of VERUM, and has empirical bite in ruling out some elliptical sentences as contrast failures. Finally, while negation generally counts for contrast, it is not possible to rely on symmetry in ellipsis licensing calculations while at the same time denying that it holds. The next section turns from participant switching VPE to another kind of ellipsis involving symmetrical predicates, and considers what it shows about the directionality of the focus membership condition.

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<sup>25</sup>Chapter 5, section 6 analyses the voice mismatch pair in (i) along similar lines:

- (i) a. ? This information should have been released, but Gorbachev didn’t.
- b. \* This information was released, but Gorbachev didn’t.

Ellipsis is licensed in (a) based on the assumption that Gorbachev is the person under obligation to release the information. This assumption is contradicted by the assertion in (b), causing ungrammaticality.

<sup>26</sup>For sure, (72) and (73) attribute inconsistent desires to the attitude holders Bill and John. But where contradiction has ruinous consequences for grammaticality, inconsistency apparently does not.

## 6 Transitivity switching and semantic identity

This section introduces another kind of ellipsis involving symmetrical predicates, ‘transitivity switching VPE’, exemplified in (80):

- (80) a. John<sub>1</sub> wanted to meet Mary<sub>2</sub>, and (in the end) they<sub>1+2</sub> DID<sub>F</sub> meet.  
b. John<sub>1</sub> and Mary<sub>2</sub> met, because she<sub>2</sub> wanted to ~~meet him<sub>1</sub>~~.

The first subsection shows how the semantic identity condition on ellipsis from (34) correctly predicts transitivity switch mismatches, and some related data from Webber (1978), to be possible: The second subsection considers how transitivity switching, in concert with participant switching, can adjudicate among theories of how much semantic identity is required for ellipsis. The discussion concludes that focus membership only needs to hold in one direction (Rooth 1992b; Fox 2000), namely  $A \in F(E)$  as in (28) and (34) above. It is not necessary for focus membership to hold the other way round (Merchant 2001; Griffiths 2019), i.e.  $E \in F(A)$ .

### 6.1 Transitivity switch mismatches

Transitivity switching VPE presents a problem for syntactic identity, since an object DP comes and goes between the antecedent and elided VPs. In (80a) the antecedent VP is transitive, but the elided VP is intransitive. Conversely in (80b), the antecedent VP is intransitive, and the elided VP is transitive.

As with participant switching, transitivity switching VPE is licensed by virtue of the symmetry of the predicate, which supports focus membership. Symmetrical predicates like *meet* have the entailment pattern indicated in (81). Intransitive *meet* entails both transitive alternates, which in turn individually entail back to the intransitive. Hence the equalities in (82) hold:

(81) John and Mary met  $\longleftrightarrow$  John met Mary  $\wedge$  Mary met John

(82)  $\text{meet}'(j+m) = \text{meet}'(j,m) = \text{meet}'(m,j)$

These equalities are impervious to how the meeting event is stated syntactically, allowing focus membership to go through and license the transitivity switching ellipses in (80) as in (83) and (84):<sup>27</sup>

(83) John<sub>1</sub> wanted to meet Mary<sub>2</sub>, and (in the end) they<sub>1+2</sub> DID<sub>F</sub> meet.

$\varepsilon = \text{meet}$

A = John wanted PRO<sub>j</sub> to meet Mary

$\llbracket A \rrbracket = \text{want}'(\text{meet}'(j,m))(j) = \text{want}'(\text{meet}'(j+m))(j)$

E = VERUM<sub>F</sub> they meet  $\llbracket E \rrbracket = \text{for-sure}'(\text{meet}'(j+m))$

F(E) = {it is for sure true that Mary and John met, it is possible that  
Mary and John met, ..., Sue wanted/expected that Mary and John met,  
John wanted that Mary and John met, ... }

$\llbracket A \rrbracket \in F(E)$  and  $\llbracket A \rrbracket \neq \llbracket E \rrbracket$

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<sup>27</sup>As well as the symmetry of *meet*, focus membership holds in (84) by virtue of F-marking on *WANT*. Intuitively, something actually happening is an alternative to someone wanting it to happen. Compositionally, we can say that an alternative to *want'* of the same type is the function  $\lambda p \lambda x.p$ .

Like the issues surrounding the referential contribution of PRO discussed in notes 18, 19 and 22, this issue is entirely independent of VPE with symmetrical predicates; e.g. (i):

(i) Mary<sub>2</sub> came because she<sub>2</sub> WANTED<sub>F</sub> to e<sub>ome</sub>.

(84) John<sub>1</sub> and Mary<sub>2</sub> met, because she WANTED<sub>F</sub> to ~~meet him<sub>T</sub>~~.

$\varepsilon$  = meet him<sub>1</sub>

A = John and Mary met                       $\llbracket A \rrbracket$  = meet'(j+m) = meet'(m,j)

E = Mary WANT<sub>F</sub> to meet John               $\llbracket E \rrbracket$  = want'(meet'(m,j))(m)

F(E) = { Mary wants Mary meet John, Mary expects Mary meet John,

Mary hopes Mary meet John, ... Mary meet John, ... }

$\llbracket A \rrbracket \in F(E)$  and  $\llbracket A \rrbracket \neq \llbracket E \rrbracket$

Similar examples to transitivity switching were observed by Webber (1978) and taken up by Hardt (2004, 2007). Consider first (85) (Webber 1978: 128, 165):<sup>28</sup>

(85) Irv and Martha want to dance together, but Martha can't  
~~dance with Irv~~, since her husband is here.

Hardt (2004, 2007) advances an account of (85) in terms of repair. The antecedent VP cannot plug directly into the ellipsis site, since ungrammaticality would result from the clash between a singular subject and the plurality-seeking *together*, as in (86):

(86) \* Martha can't dance together.

This semantically unacceptable agreement violation triggers inferencing from Irv and Mary wanting to dance together to Mary wanting to dance with Irv in (85).<sup>29</sup> Without such

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<sup>28</sup>Cf. Hardt (1993) on (i) from Webber (1978: 165), to be discussed in chapter five:

(i) Irv and Martha want to dance with each other, but Martha can't  
~~dance with Irv~~, since her husband is here.

<sup>29</sup>Cf. the distinction between ellipsis and deaccenting. Further inferencing is required to achieve semantic parallelism in cases of 'implicative bridging' (Rooth 1992b; Fox 2000) such as (i):

violation, no such inferencing is required or allowed. In (87) the ellipsis site can only be resolved as *dance together*, not *dance with Irv*:

- (87) Irv and Martha wanted to dance together, but Tom and Susan didn't want to  
~~dance together~~ / \*~~dance with Irv~~.

Our analysis based on focus membership accounts for (85) and (87) without invoking repair. For (85), focus membership is satisfied along the same lines as (84). For (87), meanwhile, focus membership would fail on the unavailable switch interpretation. Informally, Irv and Martha dancing together is not a member of alternatives to some other people wanting to dance with Irv.

- 
- (i) She<sub>1</sub> called him<sub>2</sub> a Republican, and then [HE<sub>2,F</sub> *insulted* HER<sub>1,F</sub>]

Prosodic redundancy marking of *insulted* in the second conjunct is licensed by entailment, based on the presupposed axiom: “if x calls y a Republican, then x insults y”. From this axiom is derived *insult(x,y)*, which is the contrasting proposition for focus interpretation in the second conjunct, *insult(y,x)*. Inferencing is triggered by the new, deaccented, accommodation-seeking lexical material that is present in E but not A. In the absence of deaccented, accommodation-seeking material in ellipsis, the bridged reading is unavailable in (ii):

- (ii) \* She<sub>1</sub> called him<sub>2</sub> a Republican and then [HE<sub>2,F</sub> did ~~insult her<sub>1</sub>~~]

Notice that participant and transitivity switching differs from implicative bridging in being compatible with ellipsis. Switches based on symmetry are apparently more automatic than inferencing of the kind in (ii), which needs to be triggered by accommodation-seeking material. This point is made in the text shortly below with regard to (88). The sameness of the lexical material — a symmetrical predicate plus or minus a PP — is doubtless important for switching ellipsis, as opposed to implicative bridging (Rooth 1992b).

Moreover, transitivity switching does not need to be triggered. This point was obscured by the plurality-seeking *meet* at the outset in (80). There the ellipsis site could not be resolved merely with *met*, since \**Martha met* is ungrammatical. But a transitivity switch reading remains available in (88), which removes *together* from (85). This is so despite the grammaticality of *Martha danced*, and in the absence of anything else to trigger inferencing:

- (88) Irv and Martha want to dance, but Martha can't ~~dance with Irv~~,  
since her husband is here.

Again, on our analysis transitivity switching is possible in (88) based on the symmetry of *dance (with)*.

In sum, the semantic identity condition comprising focus membership and contrast, which the foregoing motivated and applied to participant switching, also accurately captures transitivity switching VPE. Despite the syntactic transitivity differences, by symmetry each way of saying John and Mary met or John met Mary or Mary met John amount to the same meaning. Further, the analysis here accounts for transitivity switching VPE without recourse to a notion of repair (Hardt 2004, 2007).

This much is true of a fully symmetrical predicate, like *meet*. The next subsection presents partially symmetrical predicates like *kiss* in participant and transitivity switching VPE. Their behaviour applies to the question of the directionality of focus membership: whether it needs to be satisfied only in one direction, or whether E also needs to be a member of the focus value of A.

## 6.2 Unidirectional entailment

In the first half of section 4, we adopted (28), repeated here, as part of our semantic parallelism condition on ellipsis:

(28) The focus membership condition:

For  $\epsilon$  to be elided,  $\epsilon$  must be inside a phrase E that has an antecedent A such that:

$$\llbracket A \rrbracket \in F(E)$$

Based on participant and transitivity switching VPE with partially symmetrical predicates like *kiss*, this subsection argues that the statement of focus membership in (28) is correct. In particular, the condition in (28) places only a ‘one-way’ requirement on focus membership (Rooth 1992b; Fox 2000): A is required to be a member of the focus alternatives to E, but not the other way round. That is, there is no requirement for E to be a member of the focus alternatives to A. However, a ‘two-way’ version of the focus membership condition has been entertained. Merchant (2001) does so in terms of entailment, requiring antecedent and elided VPs to be mutually entailing, modulo focus closure. Griffiths (2019) does so in terms of focus membership, along the lines of (89):

(89) The double focus membership condition:

For  $\epsilon$  to be elided,  $\epsilon$  must be inside a phrase E that has an antecedent A such that:

$$\llbracket A \rrbracket \in F(E) \textbf{ and } \llbracket E \rrbracket \in F(A)$$

With certain assumptions about F-marking in A, all of the grammatical examples in this chapter so far could be made to conform to the ‘two-way’ version of focus membership in (89). For example, (45) from above would pass the double focus membership condition providing the subject of the first conjunct is F-marked in addition to the subject of the second, as in (90):



(90) JOHN<sub>1,F</sub> wanted to meet Mary<sub>2</sub>, and SHE<sub>2,F</sub> did ~~want to meet him<sub>T</sub>~~, too.

$\varepsilon = \text{want to meet him}_1$

A = JOHN<sub>F</sub> want PRO<sub>j</sub> meet Mary

$\llbracket A \rrbracket = \text{want}'(\text{meet}'(j,m))(j) = \text{want}'(\text{meet}'(m,j))(j)$

$F(A) = \{ \text{want}'(\text{meet}'(j,m))(x) \mid x \in D_e \}$

E = MARY<sub>F</sub> want PRO<sub>m</sub> meet John

$\llbracket E \rrbracket = \text{want}'(\text{meet}'(m,j))(m) = \text{want}'(\text{meet}'(j,m))(m)$

$F(E) = \{ \text{want}'(\text{meet}'(m,j))(x) \mid x \in D_e \}$

$\llbracket A \rrbracket \in F(E)$  **and**  $\llbracket E \rrbracket \in F(A)$

and  $\llbracket A \rrbracket \neq \llbracket E \rrbracket$

With focus on the subject in A as well as E, the focus values of A and E are the same: the set of all propositions of someone wanting Mary and John to meet. Just as A was a member of the focus value of E before, so now E is also a member of the focus value of A.

However, while our examples so far would all be compatible with either the one- (28) or two- (89) way version of focus membership, the behaviour of partially symmetrical predicates under participant and transitivity switching VPE supports the one-way version in (28). Fully symmetrical predicates like *meet* have the entailment pattern from (81), repeated here. Intransitive *meet* entails both transitive alternates, which in turn (individually) entail back to the intransitive. By contrast, partially symmetrical predicates like *kiss* have the entailment pattern in (91). In its intransitive guise (a), *kiss* is symmetrical, denoting a mutual kiss (e.g. on the lips) that entails the two transitive conjuncts. But in its transitive guise (b), *kiss* is not symmetrical, since it denotes a unidirectional kiss (e.g. on the cheek):<sup>30</sup>

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<sup>30</sup>See Winter (2018), who terms predicates like *meet* plain reciprocals (also *date*, *be cousins*, *be similar*), and those like *kiss* pseudo reciprocals (also *hug*, *fight (with)*, *talk (to)*).

(81) John and Mary met  $\longleftrightarrow$  John met Mary  $\wedge$  Mary met John

(91) a. John and Mary kissed  $\longrightarrow$  John kissed Mary  $\wedge$  Mary kissed John

b. John kissed Mary  $\not\rightarrow$  John and Mary kissed

Given the symmetry generalisation from section 2, it is unsurprising that non-symmetrical transitive *kiss* does not support participant switching VPE. Just as with non-symmetrical *criticise* in (47) above, focus membership fails in (92). Informally, John wanting John to kiss Mary is not a member of the set of someone wanting Mary to kiss John:

(92) \* John<sub>1</sub> wanted to kiss Mary<sub>2</sub>, and SHE<sub>2,F</sub> did ~~want to kiss him<sub>1</sub>~~, too.

$\varepsilon$  = want to kiss him<sub>1</sub>

A = John want PRO<sub>j</sub> kiss Mary

$\llbracket A \rrbracket$  = want'(kiss'(m)(j))(j)

E = MARY<sub>F</sub> want PRO<sub>m</sub> kiss John

$\llbracket E \rrbracket$  = want'(kiss'(j)(m))(m)

F(E) = { want'(kiss'(j)(m))(x) | x  $\in$  D<sub>e</sub> }

$\llbracket A \rrbracket \notin F(E)$

The elided constituent  $\varepsilon$  is *want to kiss him<sub>1</sub>*. Parallelism is evaluated at the level of the entire conjunct of each clause, setting E to *MARY<sub>F</sub> want PRO<sub>m</sub> to kiss him<sub>1</sub>*. E contains focus on the subject, so its focus value is the set of all propositions of someone wanting Mary to kiss John. Setting A also at the full clause level, focus membership is not satisfied, since transitive *kiss* is not symmetrical: John kissing Mary is not the same as Mary kissing John. Thus, without symmetry, participant switching with *kiss* is correctly ruled out as focus membership failure.

Tellingly, intransitive *kiss* only partially supports transitivity switching VPE. In (93), *kiss* does not support transitivity switching from transitive to intransitive. John kissing Mary transitively (on the cheek) is not a member of the alternatives to John and Mary wanting to share a mutual kiss (on the lips):

(93) ?? John<sub>1</sub> kissed Mary<sub>2</sub>, because they<sub>1+2</sub> WANTED<sub>F</sub> to ~~kiss~~.

$\varepsilon = \text{kiss}$

A = John kiss Mary

$\llbracket A \rrbracket = \text{kiss}'(m)(j)$

E = they WANT<sub>F</sub> PRO<sub>j+m</sub> kiss      $\llbracket E \rrbracket = \text{want}'(\text{kiss}'(j+m))(j+m)$

F(E) = { John and Mary want John and Mary kiss, John and Mary expect

John and Mary kiss, ..., John and Mary kissed, ... }

$\llbracket A \rrbracket \notin F(E)$

In (94), however, *kiss* supports switching in the opposite direction from intransitive to transitive. Accounting for (94) requires appeal to ‘indirect parallelism’ (Fox 2000; cf. note 29). Focus membership may not be satisfied by A itself, but it is by an entailment of A, notated as  $A_{\Rightarrow}$  in (94):

(94) John<sub>1</sub> and Mary<sub>2</sub> kissed, because she<sub>2</sub> WANTED<sub>F</sub> to ~~kiss him<sub>1</sub>~~.

$\varepsilon = \text{kiss him}_1$

A = John and Mary kiss      $\llbracket A \rrbracket = \text{kiss}'(j+m)$

$\llbracket A \rrbracket \Rightarrow A_{\Rightarrow} = \text{kiss}'(j)(m)$

E = Mary WANT<sub>F</sub> PRO<sub>m</sub> kiss John      $\llbracket E \rrbracket = \text{want}'(\text{kiss}'(j)(m))(m)$

F(E) = { Mary want Mary kiss John, Mary expect Mary kiss John, ...

Mary kiss John, ... }

$A_{\Rightarrow} \in F(E)$  and  $A_{\Rightarrow} \neq \llbracket E \rrbracket$

Thus, granting indirect parallelism, the one-way version of focus membership correctly predicts switching from intransitive to transitive in (94) to be grammatical. The partial symmetry of *kiss* supports an entailment from A to a member of the focus value of E.

The two-way version of focus membership, on the other hand, would make the wrong prediction for (94). Focus membership does not go through from E to A. The failed calculation would be similar to (93), with A and E switched around. Nor does E entail an E’

that is a member of  $F(A)$ , since a transitive, directional *kiss* does not entail an intransitive, symmetrical one. Thus the two-way version of focus membership would incorrectly predict switching from intransitive to transitive in (94) to be ungrammatical.

In sum, the behaviour of a partially symmetrical predicate like *kiss* provides evidence for a one-way requirement on focus membership (28) (Rooth 1992b; Fox 2000) and against a two-way version (89) (Griffiths 2019, cf. Merchant 2001). That is, A has to be a member of the focus value of E, but there is no requirement that E be a member of the focus value of A.<sup>31</sup> Therefore the statement of the semantic parallelism identity condition on ellipsis from (34), including one-way focus membership, stands.

## 7 Conclusion

This chapter applied novel data from verb phrase ellipsis with symmetrical predicates to the issue of identity in ellipsis licensing. In participant switching VPE, the subject and object participants switch between antecedent and ellipsis. Such switching engenders a tolerable syntactic mismatch, which cannot be circumvented by partial control *PRO*, Vehicle Change or voice mismatch. This syntactic non-identity, along with the empirical generalisation of symmetry, urged an analysis in terms of semantic identity. Independent of participant switching VPE, there is evidence that the widely adopted focus membership condition (Rooth 1992b; Fox 2000) needs to be strengthened by contrast (chapter 2, Stockwell 2018; Griffiths 2019). The resulting requirement that the antecedent be a proper alternative to the

---

<sup>31</sup>For a review of other challenges to mutual entailment, see Hartman (2009). For example, mutual entailment incorrectly predicts that ellipsis should be licensed in (i), since relational opposites entail one another:

- (i) \* John will beat someone at chess, and then Mary will ~~lose to someone at chess~~.

elliptical constituent stood us in good stead in accounting for participant switching VPE. Focus membership provides the requisite flexibility to permit switching, while also enforcing consistency of the participants across A and E. Contrast urged consideration of focus on VERUM, with focus membership then explaining the restriction to intensional embedding; while contrast also ruled out some ungrammatical instances of participant switching VPE as contrast failures. Further, we saw that negation generally counts for contrast, except when it contradicts the symmetry necessary for ellipsis licensing. Finally, the behaviour of partially symmetrical predicates like *kiss* in transitivity switching VPE supported a one-way (Rooth 1992b; Fox 2000) rather than a two-way (Merchant 2001; Griffiths 2019) focus membership condition.

## CHAPTER FOUR

# Competition and Verb Phrase Ellipsis

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## 0 On the hook

Over the first three chapters, this dissertation has motivated (0) as a necessary condition on verb phrase ellipsis (VPE):

(0) *A necessary condition on VPE*

For  $\varepsilon$  to be elided,  $\varepsilon$  must be inside a phrase E that has an antecedent A such that either:

- i.  $\llbracket A \rrbracket \in F(E)$  and  $\llbracket A \rrbracket \neq \llbracket E \rrbracket$ ; or
- ii.  $\llbracket A \rrbracket \subseteq F(E)$

In particular, this dissertation has argued that the second conjunct of clause (i) is as necessary as the rest. The contrast condition,  $\llbracket A \rrbracket \neq \llbracket E \rrbracket$ , explains why ellipsis is sometimes bad in trivialities and with symmetrical predicates, despite satisfying the focus membership condition,  $\llbracket A \rrbracket \in F(E)$ .

This commitment to contrast places us on the hook with respect to ‘MaxElide effects’, illustrated in (1). From a baseline sentence like (a), sluicing (b) is grammatical, but VPE (c) is not (~~strikethrough~~ indicates ellipsis):

(1) *A classic MaxElide effect*

- |    |  |                 |
|----|--|-----------------|
| a. | John ate something, but I don’t know what he ate <i>t</i> .            | <i>Baseline</i> |
| b. | John ate something, but I don’t know what <del>he ate</del> <i>t</i> . | <i>Sluicing</i> |
| c. | * John ate something, but I don’t know what he did eat <i>t</i> .      | <i>*VPE</i>     |

The standard family of analyses of (1) are grounded in competition: (c) is ungrammatical because it loses to (b) (Merchant 2008b; Takahashi & Fox 2005; Messick & Thoms 2016; Hartman 2011; Jacobson 2019a,b). Competition theories make crucial use of ellipsis licensing calculations where  $\llbracket A \rrbracket = \llbracket E \rrbracket$ , placing them in conflict with this dissertation’s emphasis on contrast. This chapter addresses this point of tension by offering critique of competition theories, and evaluating the prospects for an alternative account that embraces the contrast condition on VPE (Griffiths 2019).

## 1 Introduction

This chapter critically surveys theories of MaxElide effects, illustrated above in (1). From a base sentence like (a), sluicing is possible (b), but verb phrase ellipsis (VPE) is not (c). Most theories of MaxElide effects invoke competition to rule out VPE: (c) is ungrammatical because it loses to (b). The competition is framed in a variety of ways: in terms of syntactic size, bigger ellipsis defeating smaller (Merchant 2008b, Takahashi & Fox 2005, Hartman



2011); in terms of construction, sluicing defeating VPE (Messick & Thoms 2016); and in terms of semantic size, ellipsis of a lower type defeating ellipsis of a higher type (Jacobson 2019a,b).

This chapter argues against the competition family of analyses. For one, competition occupies a conceptually questionable place in grammar. Moreover, competition theories are descriptively inadequate, failing to rule out VPE in the absence of another winning competitor, and wrongly ruling out some optionality in the size of ellipsis. Since competition theories over- and under-generate VPE in these ways, it seems preferable to treat VPE on its own terms. Griffiths (2019) proposes an analysis in this vein: rather than as the loser of a competition with (1b), VPE is bad in cases like (1c) because ellipsis licensing fails. In particular, Griffiths (2019) rules out (1c) for failing a contrast requirement on VPE. The spirit of Griffiths's (2019) proposal chimes well with the arguments for a contrast condition on VPE presented in chapters two and three of this dissertation. While the letter of Griffiths's (2019) analysis is fundamentally flawed (Charlow 2020), a contrast-based perspective offers refreshing insight into MaxElide effects.

In outline, section 2 surveys four prominent competition-based theories of MaxElide effects (Merchant 2008b, Takahashi & Fox 2005, Messick & Thoms 2016, Jacobson 2019a,b) and comments on the conceptual place of competition, especially in view of the fully pronounced candidate (1a). Section 3 reviews the core empirical generalisation, due to Schuyler (2001), that MaxElide effects arise only when A-bar movement originates inside the elided VP. (Appendix A confirms that this generalisation holds up on a wide range of data.) The core empirical arguments against competition theories come in section 4. Competition theories overgenerate VPE in the absence of a winning ellipsis competitor, as can be shown by manipulating the availability of VPE in a higher clause. Meanwhile, they tend to undergenerate optionality in the size of ellipsis, as can be shown by considering examples with multiple auxiliaries.

With competition theories shown to be inadequate, section 5 evaluates the prospects for an analysis of MaxElide effects in terms of contrast (Griffiths 2019). Of the two core components of Griffiths (2019), the attempt to derive a limit on parallelism domains from the interaction of  $\lambda$ -binding and focus semantics fails (Charlow 2020), but the contrast insight stands. Given the former point, Griffiths's (2019) analysis can be streamlined to reduce the number of auxiliary assumptions required. Section 6 concludes on this note. (Appendix B tracks Hartman's (2011) empirical expansion to elliptical indirect as well as direct questions; though neither his friendly amendment to Takahashi & Fox (2005), nor Messick & Thoms (2016), nor Griffiths (2019) can account for the full range of data. Still, the guiding intuition that ellipsis licensing is sensitive to T-to-C movement seems to be on the right track.)

## 2 Competition theories of MaxElide effects

This section outlines four prominent competition-based theories of MaxElide effects with reference to the classic case in (1) (Merchant 2008b, Takahashi & Fox 2005, Messick & Thoms 2016, Jacobson 2019a,b).<sup>1</sup> The theories have in common that VPE (1c) is ruled ungrammatical for losing to sluicing (1b). They differ in how the competition is framed: in terms of syntactic size, construction, or semantic size. The section concludes with some comments on the conceptual place of competition in these analyses, especially in relation to the fully pronounced (1a).

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<sup>1</sup>Hartman (2011) is a friendly amendment to Takahashi & Fox (2005) to account for further data involving elliptical direct questions. As such, discussion of Hartman (2011) is postponed to Appendix B.

## 2.1 Merchant (2008b): biggest wins

Merchant (2008b: 141, ex. 32) proposes (2) as a constraint on ellipsis:

(2) *MaxElide* (Merchant 2008b)

Let XP be an elided constituent containing an A'-bar trace. Let YP be a possible target for deletion. YP must not properly contain XP ( $XP \not\subset YP$ ).

This constraint requires ellipsis to be as big as possible whenever the ellipsis site contains an A-bar trace. It applies to the classic case of a MaxElide effect from (1) as in (3):

(3) *Merchant (2008b): biggest wins*

- a. John ate something, but I don't know what he ate *t*.
- b. John ate something, but I don't know what [<sub>TP</sub> he did [<sub>VP</sub> eat *t* ]].
- c. \* John ate something, but I don't know what [<sub>TP</sub> he did [<sub>VP</sub> eat *t* ]].

In (b), TP is an elided constituent containing an A-bar trace. There is no possible target for deletion YP that properly contains TP, so sluicing is grammatical. In (c), on the other hand, VP is an elided constituent containing an A'-bar trace. But TP is also a possible target for deletion, per (b). Since TP properly contains VP, VPE is ruled ungrammatical by MaxElide.

Overall, Merchant's MaxElide constraint in (2) is about syntactic size: when there is an A-bar trace in the ellipsis site, the biggest ellipsis wins over all smaller options.

## 2.2 Takahashi & Fox (2005): bigger wins

Takahashi & Fox (2005) adopt (4) from Rooth (1992a,b) as a necessary condition on ellipsis:<sup>2</sup>

---

<sup>2</sup>(4) paraphrases Takahashi & Fox (2005: 229, exx. 19, 20):

- (i) For ellipsis of EC to be licensed, there must exist a constituent, which reflexively dominates EC, and satisfies the parallelism condition.

(4) *Ellipsis parallelism* (Takahashi & Fox 2005)

For  $\varepsilon$  to be elided,  $\varepsilon$  must be reflexively dominated by a constituent  $E$  that has an antecedent  $A$  such that, for any assignment  $g$ :  $\llbracket A \rrbracket^g \in F(E)^g$

In other words, (4) requires an elided constituent  $\varepsilon$  to be contained in a constituent  $E$  with an antecedent  $A$  whose meaning is a member of the focus value of  $E$ . (The focus value is calculated by replacing  $F(\text{ocus})$ -marked constituents with things of the same semantic type, and collecting the results into a set.) The structural size of  $E$  (and  $A$ ) is termed the Parallelism Domain (PD); while (4) might be termed the focus membership condition.<sup>3</sup>

When  $\varepsilon$  contains an  $A$ -bar trace, as in (1), PD must contain its binder for focus membership to go through. To see this, consider the failed attempt at evaluating focus membership in (5).

- 
- (ii) We will call such a constituent a Parallelism Domain, or a PD.
  - (iii) Parallelism: PD satisfies the parallelism condition if PD is semantically identical to another constituent AC, modulo focus marked constituents.
  - (iv) PD is semantically identical to AC modulo focus marked constituents, if there is a focus alternative to PD,  $PD_{\text{Alt}}$  such that for every assignment function,  $g$ ,  $\llbracket PD_{\text{Alt}} \rrbracket^g = \llbracket AC \rrbracket^g$ .
  - (v)  $PD_{\text{Alt}}$  is an alternative to PD if  $PD_{\text{Alt}}$  can be derived from PD by replacing focus marked constituents with their alternatives.

<sup>3</sup>(4) is stated in terms of focus membership for consistency with the rest of this dissertation. Reference to focus values raises the spectre, especially with respect to (6) below, of the (in)compatibility of predicate abstraction and alternative semantics (Charlow 2020). See section 5 for fuller discussion. The presentation in Takahashi & Fox (2005), per footnote 2, skirts this issue.

The LF assumes Quantifier Raising of *someone*.<sup>4</sup> PD is set at TP, excluding the binders of the traces of A-bar movement.<sup>5</sup> A and its ordinary meaning depend on the value of index 1 of the assignment; whereas E, its ordinary meaning and its focus value depend on index 2.<sup>6</sup> Since there will be worlds at which the value of index 1 differs from that of index 2, focus membership fails:

- (5) John ate something, but I don't know what he ate.

LF: [ something<sub>1</sub> John ate t<sub>1</sub> ] but I don't know [ what<sub>2</sub> he ate t<sub>2</sub> ]

A = John ate t<sub>1</sub>                       $\llbracket A \rrbracket^g = \text{eat}'(g(1))(j)$

E = he ate t<sub>2</sub>                          $\llbracket E \rrbracket^g = \text{eat}'(g(2))(j)$

$F(E)^g = \{ \text{eat}'(g(2))(j) \}$        $\llbracket A \rrbracket^g \notin \llbracket E \rrbracket^g$ , wherever  $g(1) \neq g(2)$

Rather, PD must include the binders for the traces. PD can therefore be set no lower than the clause level, including the landing site of wh-movement, and hence the binders for the wh-traces. With a clausal PD, focus membership goes through for a classic MaxElide sentence as in (6):

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<sup>4</sup>Takahashi & Fox (2005) only explicitly treat parallel wh-movement cases; e.g. their example 7:

- (i) John knows which professor we invited, but he is not allowed to reveal which one (\*we did).

<sup>5</sup>Setting PD any lower than TP, e.g. VP = E = ε, will also fail focus membership.

<sup>6</sup>By No Meaningless Co-indexing (Heim 1997), the same index cannot accidentally be re-used for two different binders.

(6) John ate something, but I don't know what he ate.

$$\begin{aligned}
 A &= \text{something}_1 \text{ John ate } t_1 & E &= \text{what}_2 \text{ he ate } t_2 \\
 \llbracket A \rrbracket^g &= \llbracket E \rrbracket^g = \lambda x.\text{eat}'(x)(j) & F(E)^g &= \{ \lambda x.\text{eat}'(x)(j) \} \\
 \llbracket A \rrbracket^g &\in F(E)^g, \text{ for any } g
 \end{aligned}$$

The first conjunct serves as the antecedent A to the embedded clause of the second conjunct as E. Focus membership is satisfied in this PD. Everything now has to do with the same thing, namely  $\lambda x.\text{eat}'(x)(j)$ . The predicate of things John ate is a member — in fact, the only member — of the set containing the predicate of things John ate.

Thus (6) satisfies the parallelism condition from (4), and ellipsis is licensed. But without saying more, ellipsis of any size, either sluicing or VPE, is predicted possible. In order to account for MaxElide effects, Takahashi & Fox (2005: 229/30, ex. 21) supplement the focus membership condition from (4) with a MaxElide constraint, their version of which is given in (7):

(7) *MaxElide (Takahashi & Fox 2005)*

Elide the biggest deletable constituent reflexively dominated by PD.

Focus membership (4) and MaxElide (7) combine to account for a classic MaxElide effect as in (8):

(8) *Takahashi & Fox (2005): bigger wins*

- a. John ate something, but I don't know [<sub>PD</sub> what [<sub>TP</sub> he ate *t* ] ].
- b. John ate something, but I don't know [<sub>PD</sub> what [<sub>TP</sub> ~~he ate *t*~~ ] ].
- c. \* John ate something, but I don't know [<sub>PD</sub> what [<sub>TP</sub> he did [<sub>VP</sub> ~~eat *t*~~ ] ] ].

PD must be clausal to satisfy focus membership, and ellipsis must be maximal in this PD. Since  $\epsilon = \text{TP}$  is possible in (b), MaxElide rules out the smaller  $\epsilon = \text{VP}$  in (c).

Overall, Takahashi & Fox's (2005) analysis, like Merchant's (2008b), involves competition in terms of syntactic size. But there is a subtle difference between them in terms of the scope

of the competition. For Merchant (2008b), the biggest possible ellipsis wins, with MaxElide limited to cases where there is an A-bar trace inside the ellipsis site. For Takahashi & Fox (2005), on the other hand, competition is limited to a particular PD. Bigger ellipsis wins in a PD, but the biggest possible ellipsis could be licensed by a larger PD. MaxElide is then a universal constraint, requiring maximal elision within a PD regardless of the presence of A-bar traces.

### 2.3 Messick & Thoms (2016): sluicing wins

Like Takahashi & Fox (2005), and unlike Merchant (2008b), Messick & Thoms (2016) restrict competition among ellipsis candidates to a particular PD, which must meet the focus membership condition from (4). But unlike either, they do not frame competition in terms of syntactic size. Doing away with MaxElide as an economy constraint specific to ellipsis, they derive its effects from derivational economy, comparing sluicing and VPE as constructions. Usually, movement must proceed in successive cyclic steps. Movement for sluicing, however, takes place in ‘one fell swoop’, with no intermediate landing sites (Fox & Lasnik 2003). Messick & Thoms (2016) propose that one fell swoop movement is more economical than successive cyclic movement. Therefore, in a given PD, sluicing is preferred over VPE, to an extent that renders VPE ungrammatical.

Messick & Thoms’s (2016) analysis is illustrated for the classic case from (1) in (9) (cf. Messick & Thoms 2016: 324, ex. 62):

(9) *Messick & Thoms (2016): sluicing beats VPE*

- a. John ate something, but I don’t know what he [<sub>VP</sub> *t*’ ate *t* ].
- b. John ate something, but I don’t know what he [<sub>VP</sub> ate *t* ].
- c. \* John ate something, but I don’t know what he did [<sub>VP</sub> *t*’ eat *t* ].

Focus membership is satisfied on a clause level PD in the same way as for Takahashi & Fox

(2005) in (6). In (9), then, sluicing (b) involves a more economical derivation than VPE (c). Sluicing bleeds successive cyclic movement, allowing movement of *what* to jump straight to Spec,CP. The derivation of VPE, on the other hand, requires a comparatively uneconomical successive-cyclic movement step (bolded) through Spec,vP.

Overall, Messick & Thoms (2016) abandon competition in terms of syntactic size. Instead, they frame the competition in terms of syntactic construction, with sluicing beating VPE. The next subsection outlines a final competition-based theory of MaxElide effects, framed in semantic rather than syntactic terms.

## 2.4 Jacobson (2019a,b) lowest type wins

Alongside theories of syntactic competition in terms of size or construction, Jacobson (2019a,b) analyses MaxElide effects as resulting from competition among semantic types: ellipsis of a lower type defeats ellipsis of a higher type. Usually, VPE involves ellipsis of type  $\langle e,t \rangle$ : a predicate, with the subject argument still to be saturated. With A-bar movement out of VP, however, VPE involves ellipsis of type  $\langle e, \langle e,t \rangle \rangle$ : the moved constituent is yet to be resolved, in addition to the subject. Sluicing, meanwhile, involves ellipsis of type  $\langle e,t \rangle$ : only the sluicing remnant remains to be resolved.

Thus Jacobson's theory applies to the classic case from (1) as in (10):

(10) *Jacobson (2019a,b): lowest type wins*

- a. John ate something, but I don't know what he ate *t*.  
no ellipsis
- b. John ate something, but I don't know what ~~he ate~~ *t*.  
ellipsis of  $\langle e,t \rangle$  :  $\lambda x.eat'(x)(j)$
- c. \* John ate something, but I don't know what he did eat *t*.  
ellipsis of  $\langle e, \langle e,t \rangle \rangle$  :  $\lambda y.\lambda x.eat'(x)(y)$



Sluicing (b) involves ellipsis of type  $\langle e,t \rangle$ ; informally, John ate something. VPE (c), on the other hand, involves ellipsis of a higher type,  $\langle e, \langle e,t \rangle \rangle$ ; informally, someone ate something. Thus sluicing outcompetes VPE, rendering (c) ungrammatical.

## 2.5 Competition and full pronunciation

Across all four competition theories surveyed in this section, competition ranges only over candidates containing ellipsis. The perfectly good option (a) of not doing any ellipsis at all in (1) has been lurking throughout, and is conspicuously excluded from the competition. Merchant (2008b: 141) speculates that MaxElide “may be in part derivable from economy, since putting the E feature [that triggers ellipsis (Merchant 2001)] higher in a given structure allows for less pronunciation.” But if pronouncing less is more economical, pronouncing everything (a) should be worse even than VPE (c). As it is, Merchant (2008b) excludes the full pronunciation candidate by specifically referencing elided constituents containing A-bar traces in his MaxElide constraint in (2).

Regarding the construction based competition in Messick & Thoms (2016), the fully pronounced candidate involves all the same steps of successive cyclic movement that are so uneconomical as to cause ungrammaticality in a derivation differing only in the E feature. Messick & Thoms (2016: 324, note 15) address the issue of the fully pronounced candidate based on identity of Numerations. Competition ranges only over candidates with the same starting Numeration. For a Numeration containing Merchant’s (2001) E feature, competition ranges over options for where to put it, yielding either sluicing or VPE. The fully pronounced candidate is built from a different Numeration, without the E feature.

However, the presence or absence of the E feature has no effect on the meaning, where meaning differences would provide a pre-theoretical way to delimit the competing candidates. With respect to economical A-bar chain formation, if not MaxElide effects directly, Müller & Sternefeld (1996, 2000) discuss various ways that the ‘reference set’ of competitors might be

defined. Pertinently here, Sternefeld (1996: sect. 2.1, ex. 10) warns against understanding identity of Numeration too literally if classic superiority effects like (11) are to be explained based on economy of derivation. For (a) to outcompete (b) based on movement of *who* being shorter than movement of *what*, the competitors must be allowed to differ in morphosyntactic realisations of tense and inserted elements like *do*:

(11) *Superiority and competition*

- a. Who *t* bought what?
- b. \* What did who buy *t*?

For Takahashi & Fox (2005) the fully pronounced candidate presents an acute empirical problem in (1). Parallelism defined in terms of focus membership, as in (4), licenses not only ellipsis, but also phonological reduction (Tancredi 1992; Rooth 1992b; Fox 2000). While fully pronounced, the second conjunct of (a) is phonologically reduced. This reduction is licensed based on the same clause-sized PD as in (8). Thus the choice between full downstressed pronunciation (a) or ellipsis (b) within a PD conflicts with the MaxElide requirement in (7) to maximally elide in a PD.

Jacobson (2019a,b) offers perhaps the most principled basis for a competition account of MaxElide effects. For Jacobson (2019a,b), the appropriate place for competition is not the grammar, but speaker-hearer based principles. While it might be clearest to fully pronounce everything we mean, there is pressure to elide based on least effort principles. When the missing meaning is easily graspable, the speaker can say less (and the hearer can listen to less). But when doing ellipsis, there is pressure to make grasping the meaning as easy as possible for the listener. That means eliding the lowest possible type among competing options.

However, speaker-hearer based competition does not usually render the dispreferred option ungrammatical. Rather, in Gricean terms, choosing the ‘other’ option flouts a maxim of speaker-hearer cooperation, giving rise to an implicature; for example, a Manner

implicature, as for the second member of the pair in (12):

(12) *Manner implicature*

- a. John stopped the car.
- b. John caused the car to stop.

Conforming to the speaker-hearer based maxim that usual things should be expressed in usual ways, we interpret (a) to mean that John stopped the car in a normal way, e.g. by pressing the brake pedal. This maxim is flouted in (b), giving rise to the Manner implicature that John stopped the car in an unusual way, e.g. by slamming his foot on the brake pedal, or jumping in front of it. That is, the preference for (a) is grounded in speaker-hearer based principles of cooperation, and (b) flouts these principles to generate additional pragmatic meaning. If speaker-hearer based principles underlie MaxElide effects, we might expect VPE not to be ungrammatical compared to sluicing, but to generate an implicature, perhaps along the lines of (12b). However, the (c) option in the classic MaxElide paradigm is decidedly ungrammatical, with no implicatures given a chance to arise.

In sum, there are conceptual reasons to be sceptical of the competition-based approaches to MaxElide effects. The MaxElide constraints of Merchant (2008b) and Takahashi & Fox (2005) enforce an intuition that eliding more is preferable to eliding less, despite the possibility of eliding nothing at all. For Messick & Thoms (2016), the fully pronounced candidate is just as derivationally flawed as VPE, but is spared for lacking an E feature. And while Jacobson (2019a,b) locates competition outside the grammar, grounding it in speaker-hearer principles, Gricean competition generally causes pragmatic effects rather than unacceptability.

Moreover, there are empirical reasons to doubt competition theories of MaxElide effects. To set up the empirical arguments of section 4, the next section confirms that the competition theories successfully distinguish ellipsis of VPs containing A-bar traces, where MaxElide effects arise, from ellipsis of VPs without A-bar traces, where they do not.

### 3 The locus of A-bar movement

The previous section outlined four competition-based theories of MaxElide effects. This section shows that their predictions align with ‘Schuyler’s generalisation’, quoted in (13) (Schuyler 2001: 16, ex. 110):<sup>7</sup>

(13) *Contrast-locality condition for VPE extraction*

For A-bar extraction out of the site of VPE to be licensed, there must be a contrastively focused expression in the c-command domain of the extracted phrase.

The competition theories correctly predict that MaxElide effects do not arise in the absence of A-bar movement (section 3.1), and when A-bar movement launches from outside VP (section 3.2). Rather, MaxElide effects arise only when A-bar movement launches from inside VP (section 3.3), but can be ameliorated by intervening focus (section 3.4). The next section will then show that the competition theories fail, each in their own way, to account for further paradigms involving clausal embedding and various sizes of VPE.

#### 3.1 No A-bar movement

In the absence of any A-bar extraction in (14), there is no sluicing candidate. Still, ellipsis is free to be big or small:

(14) *Plain VPE can be big or small*

- a. Mary said John ate cheese. SAM also said John ate cheese.
- b. Mary said John ate cheese. SAM also did say ~~John ate cheese~~.
- c. Mary said John ate cheese. SAM also said he did ~~eat cheese~~.

---

<sup>7</sup>In (13), ‘c-command domain’ covers right-adjoined focused adverbials, which linearly follow VP; but we will restrict ourselves to intervening focus here.

Both matrix VPE (b) and embedded VPE (c) are grammatical in (14). The competition theories all correctly predict that big VPE does not out-compete small VPE when there is no A-bar movement. For Merchant (2008b), the biggest ellipsis wins only when the ellipsis site contains an A-bar trace. The MaxElide constraint in (2) is explicitly circumscribed to ellipsis sites containing A-bar traces, placing (14) outside its purview. For Takahashi & Fox (2005), bigger ellipsis only beats smaller in a given PD. In MaxElide cases, PD must stretch up to include the binder for the A-bar trace. Absent any A-bar traces in (14), PD can be any size between the embedded VP and the whole sentence. Setting PD at or larger than matrix VP, maximal elision yields matrix VPE (b). Setting PD any smaller, including at the embedded VP itself ( $E = \varepsilon$ ), maximal elision yields embedded VP (c). For Messick & Thoms (2016), sluicing beats VPE to derive MaxElide effects. In the absence of a sluicing option in (14), there is nothing to out-compete and rule out either size of VPE. Finally, for Jacobson (2019a,b), VPE of any syntactic size without an A-bar trace will be the same semantic size. In (14), we have ellipsis of  $\lambda x.\text{say}'(\text{eat}'(\text{cheese}')(\text{j}))(x)$  in (b), and  $\lambda x.\text{eat}'(x)$  in (c). These tie in their types on  $\langle e,t \rangle$ , so either syntactic size of VPE is possible.

### 3.2 A-bar movement from outside VP

VPE remains possible in cases where there is A-bar movement, but launching from a position above VP. A-bar movement of subjects (15) and adjuncts (16) corresponding to matrix clause indefinites launches from outside rather than inside the elided VP:

(15) *Matrix subject*

- a. Someone ate cheese, but I don't know who  $t$  ate cheese.
- b. Someone ate cheese, but I don't know who  ~~$t$  ate cheese~~.
- c. Someone ate cheese, but I don't know who  $t$  did ~~eat cheese~~.

(16) *Matrix adjunct*

- a. John ate cheese, but I don't know when [ he ate cheese *t* ].
- b. John ate cheese, but I don't know when [ ~~he ate cheese~~ *t* ].
- c. John ate cheese, but I don't know when [ he did eat ~~cheese~~ *t* ].

The competition theories continue to make the correct prediction that both sluicing (b) and VPE (c) are possible when A-bar movement launches from outside the elided VP. For Merchant (2008b), (15) and (16) are again outside the purview of MaxElide: VP is an elided constituent, but does not contain an A-bar trace. For Takahashi & Fox (2005), PD is again free to be big or small without a trace inside VP. Maximal elision in each PD corresponds to sluicing (b) and VPE (c), respectively. For Messick & Thoms (2016), sluicing and VPE are equally economical when A-bar movement launches from above vP. Before, VPE involved the uneconomical extra step of successive cyclic movement through Spec,vP. Here, movement proceeds straight to Spec,CP, just like sluicing. Since sluicing and VPE tie on the number of movement steps, both are grammatical. Finally, for Jacobson (2019a,b), ellipsis will be of the same semantic size, regardless of its syntactic size. Illustrating with the subject case from (15),<sup>8</sup> sluicing involves ellipsis of type  $\langle e,t \rangle$ , as before:  $\lambda x.eat'(cheese')(x)$ . But this time, VPE involves ellipsis of exactly the same thing:  $\lambda x.eat'(cheese')(x)$ . With a tie on types, either syntactic size of ellipsis is possible.

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<sup>8</sup>The adjunct case from (16) involves an additional but untroublesome wrinkle for Jacobson (2019a,b). Sluicing and VPE both involve ellipsis of the same predicative size (a function from a basic type to truth), but the types are different. VPE continues to involve ellipsis of type  $\langle e,t \rangle$ :  $\lambda x.eat'(cheese')(x)$ ; whereas sluicing involves ellipsis of type  $\langle i,t \rangle$ , a predicate of times:  $\lambda t.eat'(cheese')(j)$  at *t*. Still, since it is the size of the types that matters, not the specific types themselves, this tie in semantic size correctly predicts either syntactic size of ellipsis to be grammatical in (16).

### 3.3 A-bar movement from inside VP

Section 2 showed how the competition theories account for the classic case of a MaxElide effect in (1), which involves an object moving from inside the elided VP. Schuyler's (2001) generalisation (13) that MaxElide effects arise only with movement from inside and not outside the ellipsis site is very robust. For example, the crucial factor in the goodness of VPE with subjects (15) and (16) is not subject-hood or adjunct-hood *per se*, but rather the fact that A-bar movement launches from above the elided VP. This can be seen by considering A-bar movement out of complements to an elided verb. Embedded subjects (17) and adjuncts (18) give rise to MaxElide effects just as much as the matrix object in the classic case (1), since A-bar movement launches from inside the ellipsis site (cf. Hartman 2011: 375, ex. 23; 373, exx. 16-19):<sup>9</sup>

(17) *Embedded subject*

Mary thinks someone ate cheese, but I don't know . . .

- a. who she thinks *t* ate cheese.
- b. who ~~she~~ thinks ~~*t*~~ ate cheese.
- c. \* who she does think *t* ate cheese.

(18) *Embedded adjunct*

Mary thinks John ate cheese, but I don't know . . .

- a. when she thinks [ he ate cheese *t* ].
- b. when ~~she~~ thinks [ ~~he~~ ate cheese ~~*t*~~ ].
- c. \* when she does think [ he eat cheese *t* ].

Appendix A provides further evidence that MaxElide effects arise only with movement from

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<sup>9</sup>Stative *think* forces an embedded reading of the temporal adverbial in (18), where Hartman's (2011) examples leave the matrix reading available.

inside the elided VP. The locus of A-bar movement can be dissociated from grammatical function, as here, as well as from factors such as embedding and sprouting.

Overall, the competition theories correctly predict that MaxElide effects arise only with A-bar movement from inside the elided VP. This pattern is summarised in (19):

(19) *The locus of A-bar movement*

A-bar trace position	Outside VP			Inside VP		
	none (14)	matrix subject (15)	matrix adjunct (16)	matrix object (1)	embedded subject (17)	embedded adjunct (18)
VPE	✓	✓	✓	*	*	*

### 3.4 Focus and A-bar movement

So far, this section has discussed the presence and locus of A-bar movement. This subsection substantiates the focus component of Schuyler’s (2001) generalisation from (13): there must be a contrastively focused expression in the c-command domain of the extracted phrase.

Focus intervening between the wh-phrase and the ellipsis site alleviates MaxElide effects. VPE is good in (20) with focus on the subject (a) or T head (b) of the clause containing ellipsis (CAPS indicates focus):

(20) *Intervening focus*

- a. John should eat something, but I don’t know what SAM should eat *t*.
- b. John will eat something, but I don’t know what he **SHOULDN’T** eat *t*.

The competition theories all predict VPE to be good in (20) on the grounds that phonologically focused material cannot be elided. Since focus in the TP domain bleeds sluicing, VPE faces no competition and is ruled grammatical.

However, focus ameliorates MaxElide effects only when it is in the c-command domain of the landing site of A-bar movement. VPE is bad in (21) with focus higher than the



wh-phrase, on the matrix clause subject (a) or object (b):

(21) *Superordinate focus*

- a. ?? BETH knows what John will eat *t*, and CAROL also knows what he will eat *t*.
- b. ?? Beth KNOWS what John will eat *t*. In fact,  
she REPORTED what he will eat *t*.

The predictions of the competition theories on (21), and the broader paradigms implied, are discussed in the next section. While successful to this point, the competition theories struggle in circumstances where there is no winning candidate, or there are too many.

## 4 Empirical problems for competition

This section discusses data sets that pose problems for competition theories of MaxElide effects. The first subsection shows that VPE remains bad even after all competitors have been eliminated, where competition predicts that there should be a winner. The second shows that optionality persists among various sizes of ellipsis beyond the basic case in (14), where competition predicts that there should be just one winner. The next section will then consider an alternative theory of MaxElide effects based on contrast (Griffiths 2019).

### 4.1 No winner

With competition among ellipsis candidates, there should be a winner. However, manipulating the availability of ellipsis candidates in higher clauses shows up cases where there is no winner. The baseline paradigm in (22) builds on (21a) from the end of the previous section. With focus on the matrix subject, matrix VPE (b) is good, while sluicing (c) and embedded VPE (d) are bad:

(22) *Matrix VPE* ✓

BETH knows what John will eat *t*, and . . .

- a. CAROL also knows what he will eat *t*.
- b. CAROL also does ~~know what he will eat *t*~~.
- c. ?? CAROL also knows what ~~he will eat *t*~~.
- d. ?? CAROL also knows what he will eat ~~*t*~~.

The paradigm in (22) is based on Merchant (2008b: 142, ex. 33). By his MaxElide constraint from (2), the biggest ellipsis wins over any smaller ellipses when the ellipsis site contains an A-bar trace. Embedded TP (c) and embedded VP (d) are both elided constituents containing A-bar traces. But matrix VP contains them, and is also a possible target for deletion (b). Hence (c) and (d) are bad for losing to (b).

The problem for competition comes with the paradigm in (23), which builds on (21b). With focus on the matrix verb, matrix VPE is no longer a possibility (b); yet sluicing (c) and embedded VPE (d) remain bad:

(23) *Matrix VPE* ✗

Beth KNOWS what John will eat *t*. In fact, . . .

- a. she REPORTED what he will eat *t*.
- b. ✗ she did REPORT ~~what he will eat *t*~~.
- c. ?? she REPORTED what ~~he will eat *t*~~.
- d. ?? she REPORTED what he will eat ~~*t*~~.

The continued unacceptability of (c) and (d) poses a challenge for competition. Back in (22), matrix VPE (b) was called upon to rule out (c) and (d). But with matrix VPE (b) now unavailable, there is no winning option to outcompete and rule out smaller ellipsis in (c) or (d). In fact, there is no winning option at all. Thus Merchant's (2008b) good predictions for (22) do not extend to (23).

Merchant's (2008b) account could be rescued by making the following two assumptions. First, sluicing (c) is bad for independent reasons. That is, clausal ellipsis is licensed in (c), with its unacceptability arising for non-ellipsis-related reasons (e.g. AnderBois 2014). Second, competition among ellipsis candidates is ordered before sluicing is ruled out. With these two assumptions, (22) and (23) would be accounted for in the same way. Regardless of the availability of matrix VPE (b) in the higher clause, sluicing (c) outcompetes embedded VPE (d) as far as ellipsis licensing is concerned, before it is ultimately ruled out itself.

The rest of the competition theories must make the same two assumptions to have any success on (22) and (23). For Messick & Thoms (2016), matrix VPE (b) is irrelevant, since competition is between VPE and sluicing as constructions. In both (22) to (23), sluicing (c) outcompetes VPE (d) in an embedded clause PD. Subsequently to this competition ruling out (d), (c) would have to be ruled out for reasons independent of ellipsis licensing.

For Jacobson (2019a,b), matrix VPE (b) in (22) involves ellipsis of  $\langle e,t \rangle$  — while there is an A-bar trace in the ellipsis site, the landing site is also elided, lowering the type. Since embedded VPE (d) involves ellipsis of the higher type  $\langle e, \langle e,t \rangle \rangle$ , it loses to (b). Sluicing (c), however, should be good, at least in terms of ellipsis licensing, since it ties with (b) on  $\langle e,t \rangle$ . Sluicing must therefore be ruled out for independent reasons. After (b) is taken away in (23), we see that sluicing (c) must be a candidate in the ellipsis competition, even though it is later ruled out. Without (b), (c) is all that is left to outcompete and rule out (d).

For Takahashi & Fox (2005), consider first what happens if we interpret the degradation of (c) at face value to mean that the embedded clause is not a legitimate PD. Setting PD at matrix VP or higher in (22) yields matrix VPE, successfully ruling out smaller ellipsis in (c) and (d). But matrix VP remains a legitimate PD in (23), even if matrix VPE (b) is unavailable, since knowing is an alternative to reporting. Maximal elision in this PD should yield sluicing (c), if not embedded VPE (d), contrary to fact. So consider now what happens if we assume clausal ellipsis is licensed, with sluicing later ruled out independently.

Allowing the embedded clause to be a PD, we can ignore matrix VPE (b) and the step of removing it from (22) to (23). Sluicing (c) outcompetes embedded VPE (d), before itself falling for independent reasons.

Overall, the paradigms in (22) and (23) are challenging for competition theories. Merchant (2008b) can account straightforwardly for (22),<sup>10</sup> but not (23) where there is no winner. In order to generalise to (23), his analysis must be supplemented with a theory of sluicing whose

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<sup>10</sup>This relative success for Merchant (2008b) is tempered by a uniquely bad prediction with respect to (i). This paradigm adds a second level of clausal embedding, with A-bar movement in the lowest clause. In addition to full pronunciation (a), VPE is possible in the highest (b) and intermediate (c) clauses, just not in the lowest clause (d):

- (i) Mary said John knows who Chris likes *t*.
  - a. SAM also said John knows who Chris likes *t*.
  - b. SAM also did say ~~John knows who Chris likes~~ *t*.
  - c. SAM also said John does ~~know who Chris likes~~ *t*.
  - d. \* SAM also said John knows who Chris does ~~like~~ *t*.

Merchant (2008b) incorrectly predicts intermediate VPE (c) to be bad. The VP headed by *know* is an elided constituent containing an A-bar trace (c). But *say*'s VP is a possible target for deletion, per (b). By Merchant's MaxElide (2), (b) should defeat and rule out (c).

This prediction could be corrected by altering MaxElide to make reference to *unbound* A-bar traces. However, this might threaten to undo Merchant's (2008b) straightforwardly good predictions for (22). For matrix VPE (b) to outcompete sluicing (c), the ellipsis site in (c) would have to exclude the binder of the A-bar trace.

The difference between A-bar movement out of versus within ellipsis sites will also pose a challenge to Griffiths's (2019) analysis in the next section; in particular, with respect to (22b).

effects are crucially ordered after ellipsis licensing competition. The other competition theories require both of these supplementary assumptions in order to account for either of (22) and (23).

The palatability of these assumptions is brought into doubt by the fact that MaxElide(-like) effects arise in relative clauses. VPE is bad in (24), despite being the only potential candidate for ellipsis (Griffiths 2019: 583, ex. 28a; cf. Schuyler 2001: 10f., exx. 67-70):<sup>11</sup>

- (24) \* Sue KNOWS the girl (who) Joe kissed *t*,  
but she doesn't RESPECT the girl (who) he did ~~kiss~~*t*.

The competition theories would have to allow clausal ellipsis to compete in order to rule out VPE in (24). Above, this assumption gained credibility from the fact that sluicing is often possible in indirect questions. Here the assumption looks more suspect, since sluicing is never allowed in relative clauses. All the while, the pattern in relative clauses is the same as in the MaxElide paradigm. Where A-bar movement from inside the ellipsis site is a problem (24), movement from outside the ellipsis site is not, as shown by the subject relative clause in (25) (Griffiths 2019: 584, ex. 35):

- (25) Sue KNOWS the girl who kissed Joe,  
but she doesn't RESPECT the girl who did ~~kiss~~Joe.

Thus the problem of movement from inside a VPE site persists in an area where there is never any competition from sluicing.

A final challenge to competition comes from certain question-answer pairs. So far, we have considered 'sluicing configurations', where the antecedent is declarative and the clause containing ellipsis is an indirect question. Hartman (2011) observes that VPE (c) goes bad in adjunct direct questions (26) (Hartman 2011: 378, ex.31):

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<sup>11</sup>See Griffiths (2019: 583-5, sect. 2.2.5) for some further candidate domains where ellipsis is bad despite the impossibility of sluicing.

(26) *Adjunct question*

John ate cheese.

- a. When did he eat cheese?
- b. When ~~he ate cheese~~?
- c. \* When did he ~~eat cheese~~?

Appendix B considers the terrain of MaxElide effects in direct questions (Hartman 2011) in full detail. For now, it suffices to note that while VPE (c) is bad in (26), clausal ellipsis (b) is good. For the competition theories, (b) rules out (c). By the logic of competition, removing the (b) option should allow (c) to win by walkover. This logic is fulfilled in (27) (cf. Hartman 2011: 385, ex. 51). With focus blocking clausal ellipsis (b), VPE (c) becomes good:

(27) *Adjunct question, Focus*

John ate cheese.

- a. (Hmm, interesting.) When did BILL eat cheese?
- b. ✗ (Hmm, interesting.) When ~~BILL ate cheese~~?
- c. (Hmm, interesting.) When did BILL ~~eat cheese~~?

The problem comes with object direct questions. In (28) (cf. Hartman 2011: 368, exx. 1c-e), competition can continue to attribute the badness of VPE (c) to the goodness of clausal ellipsis (b). But in (29) (cf. Hartman 2011: 386, ex. 52), VPE (c) remains bad, despite focus removing the option of clausal ellipsis (b):

(28) *Object question*

John ate something.

- a. What did he eat?
- b. What ~~he ate~~ *t*?
- c. \* What did he ~~eat~~ *t*?

(29) *Object question, Focus*

John ate something.

- a. (Hmm, interesting.) What did BILL eat *t*?
- b. ✗ (Hmm, interesting.) What ~~BILL~~ ate *t*?
- c. \* (Hmm, interesting.) What did BILL eat *t*?

Thus (29) is another case where VPE is bad, despite facing no competition from clausal ellipsis.

Overall, competition theories are not suited to circumstances where there is no winning ellipsis candidate. The paradigms in (22) and (23) manipulated the availability of ellipsis in higher clauses, to account for which competition theories would have to make additional, ordered assumptions about sluicing. These assumptions look questionable in view of relative clauses, where sluicing is not possible (24), and are of no help on object direct questions with focus (29). The next subsection considers circumstances where there are multiple winners, which are likewise problematic for competition.

## 4.2 Too many winners

The previous subsection showed how competition theories struggle with paradigms where no ellipsis options are good. This subsection shows similar for paradigms with multiple auxiliaries, where multiple options for ellipsis are good.

We saw in section 3 that the competition theories all correctly avoid big VPE outcompeting small in (14), presented slightly differently in (30):

(30) *Plain VPE can be big or small*

Mary said John ate something.

- a. SAM also said John ate something.
- b. SAM also did say ~~John ate something~~.
- c. SAM also said he did ~~eat something~~.

Recall that, absent an A-bar trace in the ellipsis site Merchant's (2008b) MaxElide doesn't apply; PD can be as small as embedded VP for (c) (Takahashi & Fox 2005); and there is no sluicing (Messick & Thoms 2016) or lower-typed (Jacobson 2019a,b) competitor to (c).

The paradigm in (31) establishes a baseline with multiple auxiliaries. Of the three auxiliaries in (a), the highest one, which sits in T, must survive when doing VPE (b).<sup>12</sup> Of the remaining two, VPE can optionally include both (c), one (d), or neither (e) of them:<sup>13</sup>

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<sup>12</sup>To the extent (31b) can be good, it would be derived by clausal ellipsis rather than VPE.

<sup>13</sup>In (31), (c) and (d) can have other meanings for some speakers; e.g. just *eat cheese* as the ellipsis site in (c). The availability of meanings other than those indicated is beside the point here. Elsewhere, Sailor (2014: 132ff.) notes dialectal variation regarding the varying sizes of ellipsis in (c)-(e): American English prefers smallest VPE (e), where other Englishes prefer highest VPE (c). Using three auxiliaries in (31) provides an intermediate option (d), with the idea that at least two VPE options will be available for all speakers to make the point in (32).



(31) *Multiple auxiliaries*

John could have been eating something.

- a. SAM also could have been eating something.
- b. ✗ SAM also could have been eating something.
- c. SAM also could have been eating something.
- d. SAM also could have been eating something.
- e. SAM also could have been eating something.

Again absent an A-bar trace in the ellipsis site, Merchant's (2008b) MaxElide constraint doesn't apply; focus membership can be satisfied by taking PD to be the same size as the ellipsis ( $PD = \epsilon$ ) in each case (Takahashi & Fox 2005); and none of the VPE options (c)-(e) face any competition from sluicing (Messick & Thoms 2016) or ellipsis of a lower type (Jacobson 2019a,b).

However, adding A-bar movement out of the ellipsis site to (31) creates a problem for competition theories based on syntactic size. The paradigm in (32) combines multiple auxiliaries with an A-bar trace inside VP. Focus on the embedded subject blocks sluicing (b). We saw with (20) in section 3.4 that intervening focus makes VPE good. We see here that it in fact makes all syntactic sizes of VPE good. The options for including auxiliaries in VPE (c)-(e) remain the same as in (31):

(32) *Multiple auxiliaries, A-bar movement, and embedded focus*

John could have been eating something, but I don't know . . .

- a. what SAM could have been eating *t*.
- b. ✗ what SAM could have been eating *t*.
- c. what SAM could have been eating *t*.
- d. what SAM could have been eating *t*.
- e. what SAM could have been eating *t*.

Merchant (2008b) and Takahashi & Fox (2005) incorrectly predict (d) and (e) to be ungrammatical, since they should be outcompeted by (c). For Merchant (2008b), the highest VP (c) is a possible target for deletion that contains an A'-bar trace. The smaller VPs in (d) and (e) are contained in the highest VP; so ellipsis should be bad in (d) and (e). For Takahashi & Fox (2005), the smallest possible PD is the embedded clause, so as to include the binder for the A-bar trace in the ellipsis site. Maximal elision in this PD yields (c); so (d) and (e) should be bad.

Messick & Thoms (2016) and Jacobson (2019a,b), on the other hand, correctly predict the full range of options for VPE size in (32). Without competition from sluicing (b), Messick & Thoms (2016) predict all VP options (c)-(e) to be grammatical. For Jacobson (2019a,b), meanwhile, (c)-(e) all involve ellipsis of the same type,  $\langle e, \langle e, t \rangle \rangle$ , with both object and subject yet to be resolved. Thus the paradigm in (32), combining ellipsis with multiple auxiliaries, A-bar movement and embedded focus, distinguishes among the competition theories: those based on syntactic size (Merchant 2008b, Takahashi & Fox 2005) make the wrong predictions, while those based on other factors (Messick & Thoms 2016, Jacobson 2019a,b) make the correct ones.

Of the latter, competition in terms of construction (Messick & Thoms 2016) and semantic size (Jacobson 2019a,b) can be further distinguished after removing embedded focus from (32). The paradigm in (33) combines only multiple auxiliaries and A-bar movement. With sluicing now good (b), all VPE options (c)-(e) go bad (cf. Park & Han 2016: 457, ex. 31c):

(33) *Multiple auxiliaries and A-bar movement*

John could have been eating something, but I don't know . . .

- a. what he could have been eating *t*.
- b. what he ~~could have been eating~~ *t*.
- c. \* what he could ~~have been eating~~ *t*.
- d. \* what he could have ~~been eating~~ *t*.
- e. \* what he could have been ~~eating~~ *t*.

Jacobson (2019a,b) correctly predicts that VPE is bad, now that sluicing (b) is good.<sup>14</sup> All the options for VPE in (c)-(e) involve ellipsis of type  $\langle e, \langle e, t \rangle \rangle$ , and so are outcompeted by sluicing of the lower type  $\langle e, t \rangle$ .

On the face of it, we might expect Messick & Thoms (2016) to predict the same, since sluicing (b) is more economical than VPE (c)-(e). However, they incorrectly predict VPE to be good in all of (c)-(e) given their more detailed assumptions about head movement. Messick & Thoms (2016: 322) have auxiliaries raise from little *v* to *T*, and represent this head movement with  $\lambda$ -binding (cf. Hartman 2011 in Appendix B). Without such auxiliary-raising, successive cyclic movement through Spec,vP would render *v'* a legitimate PD, even with A-bar movement out of VP. Illustrating in (34), successive cyclic A-bar movement (*x'*) from object position (*x*) in (a) would make VPE an option in PD = *v'*, leading to incorrect predictions even for classic MaxElide effects. To prevent PD = *v'*, Messick & Thoms (2016) propose that the relevant structure is instead (b), with *z* representing the trace of head movement of the auxiliary. Since *z* is not bound until TP, as in (c), and is free within vP, *v'* is prevented from serving as PD:

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<sup>14</sup>Merchant (2008b) and Takahashi & Fox (2005) likewise make correct predictions for (33).

(34) a. *Successive cyclic A-bar movement (x) through Spec,vP . . .*

$vP = [_{vP} x' \lambda x. \text{eat } x ]$

b. *. . . plus auxiliary raising (z) . . .*

$vP = [_{vP} x' \lambda x. z \text{ eat } x ]$

c. *. . . which is not bound until TP*

$TP = [_{TP} \text{could } \lambda z. [_{vP} y \lambda x. z \text{ eat } x ] ]$

However, with multiple auxiliaries, only the highest one raises to T. All lower auxiliaries remain in their base positions, which for consistency would also be little v positions. For further consistency, assume successive cyclic movement proceeds through every Spec,vP. Then all but the highest Spec,vP will have the structure in (a). Absent v to T movement, there are no unbound traces in vP, making v' a legitimate PD. Thus Messick & Thoms (2016) incorrectly predict ellipsis to be good in (c)-(e), since in each case there is a legitimate v'-sized PD in which VPE faces no competition from sluicing.

In sum, syntactic competition theories fail to capture the full range of data with regard to various sizes of VPE. Syntactic size competition (Merchant 2008b, Takahashi & Fox 2005) fails to predict optionality in the size of VPE with multiple auxiliaries, A-bar movement, and sluicing blocked by embedded focus (32). Construction competition (Messick & Thoms 2016) makes the right predictions in these circumstances, but incorrectly predicts all VPE options to remain good in (33), due to assumptions regarding auxiliary raising. Unlike the syntactic theories, semantic type competition (Jacobson 2019a,b) succeeds on all the data so far in this subsection.

However, all the competition theories, Jacobson (2019a,b) included, fail on (35). With focus on the wh-NP restrictor, both sluicing (b) and VPE (c) are permitted:<sup>15</sup>

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<sup>15</sup>(35c) is from Griffiths (2019: 581, ex. 21a; 588, ex. 45a); cf. Schuyler (2001: ex. 47). Both (35b) and (35c) sound worse, to a similar extent, with *but I don't know* in place of *not*.

(35) *Focused restrictor*

- a. I know which GIRL he kissed, but not [which BOY] he kissed *t*.
- b. I know which GIRL he kissed, but not [which BOY] ~~he kissed~~ *t*.
- c. I know which GIRL he kissed, but not [which BOY] he did ~~kiss~~ *t*.

As Griffiths (2019) points out, the competition theories incorrectly predict that sluicing (b) should outcompete and rule out VPE in (c). Where (32) presented a problem only for those competition theories based on syntactic size, (35) challenges all of them. The paradigm in (32) showed that focus in the c-command domain of the wh-phrase allows all sizes of VPE. Here we see that focus in the (reflexive) c-command domain of the wh-phrase allows all sizes of ellipsis. The inclusion of sluicing in (35) is a problem for Messick & Thoms (2016), who incorrectly predict that sluicing (b) should outcompete VPE (c); and also Jacobson (2019a,b), for whom ellipsis of type  $\langle e, t \rangle$  (b) should defeat ellipsis of type  $\langle e, \langle e, t \rangle \rangle$  (c).

Overall, the competition theories struggle to rule out VPE in the absence of a winning competitor, and over-exclude optionality among different sizes of ellipsis. As such, competition theories are not successful as analyses of MaxElide effects. The positive effect of focus on VPE, especially in (35) bodes well for an attempt to account for MaxElide effects in terms of contrast. The next section evaluates the prospects for a theory along these lines, as spearheaded by Griffiths (2019).

## 5 Contrast and MaxElide effects

This chapter set out to address the tension between the thesis of this dissertation and competition-based accounts of MaxElide effects. Chapters two and three motivated a contrast condition on VPE,  $\llbracket A \rrbracket \neq \llbracket E \rrbracket$ ; where competition theories crucially allow equality,  $\llbracket A \rrbracket = \llbracket E \rrbracket$ . Over the first four sections of this chapter, we have seen that competition is an inadequate basis for a theory of MaxElide effects, which resolves the initial point of tension.

This section considers the prospects for an account of MaxElide effects where contrast is not only respected, but plays an explanatory role. In this vein, Griffiths (2019) proposes to rule out VPE in MaxElide paradigms on its own terms, rather than as the loser of a competition with sluicing, as contrast failure.<sup>16</sup> In outline, the first subsection sketches Griffiths's (2019) analysis and a fundamental flaw identified by Charlow (2020). The second explores the empirical lay of the land, taking seriously Griffiths's (2019) commitment to contrast as an insightful probe into MaxElide effects. The third proposes revisions to Griffiths's (2019) analysis that consolidate the number of auxiliary assumptions required, and improve on its empirical coverage.

### 5.1 Charlow (2020) versus Griffiths (2019)

The core idea in Griffiths (2019) is that VPE is subject to a requirement for contrast. In addition to focus membership, as in (6), the ordinary meanings of the constituent E containing ellipsis and its antecedent A must be different, per (36):<sup>17</sup>

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<sup>16</sup>Griffiths (2019) assumes that sluicing, as opposed to VPE, is subject to a separate Question-Under-Discussion based licensing condition requiring semantic identity between questions (Barros 2014).

<sup>17</sup>Griffiths (2019) attributes the version of ellipsis parallelism in (36) that includes the contrast condition to Rooth (1992b); but recall the discussion in chapter two, section 2.

(36) *A necessary condition on VPE*

For  $\epsilon$  to be elided,  $\epsilon$  must be inside a phrase E that has an antecedent A such that:

$$\llbracket A \rrbracket \in F(E) \text{ and } \llbracket A \rrbracket \neq \llbracket E \rrbracket$$

Incorporating contrast differs from the competition theories, especially Takahashi & Fox (2005), which make crucial use of Parallelism Domains where  $\llbracket A \rrbracket = \llbracket E \rrbracket$ .

Illustrating on the classic case of a MaxElide effect (1c), very roughly in the first instance, (37) is ungrammatical for Griffiths (2019) due to contrast failure:

(37) *The classic case: \*  $\llbracket A \rrbracket = \llbracket E \rrbracket$*

\* John ate something, but I don't know what he did eat  $t$ .

something [<sub>A</sub> John ate  $t$  ], but I don't know what [<sub>E</sub> he did [ <sub>$\epsilon$</sub>  eat  $t$  ] ].

With intervening focus, on the other hand, VPE is good in (38), since focus provides for contrast:

(38) *Intervening focus:  $\llbracket A \rrbracket \neq \llbracket E \rrbracket$*  = (20)

a. John should eat something, though I don't know what SAM should eat  $t$ .

b. John will eat something, though I don't know what he SHOULD'N'T eat  $t$ .

Thus Griffiths (2019) inverts the relationship between focus and the licensing of VPE. For the competition theories, focus makes sluicing impossible, leaving VPE as the winner by default. For Griffiths (2019), focus makes VPE good, without reference to sluicing, by satisfying contrast.

Griffiths (2019) tailors the technical details of his analysis to predict that VPE is good with intervening focus in (38), but not superordinate focus in (39):

(39) *Superordinate focus* = (21)

a. ?? BETH knows what John will eat  $t$ , and CAROL also knows what he will eat  $t$ .

b. ?? Beth KNOWS what John will eat  $t$ . In fact,  
she REPORTED what he will eat  $t$ .

Griffiths (2019) embraces known technical difficulties with making Alternative Semantics compatible with A-bar  $\lambda$ -binding, a.k.a Predicate Abstraction (Rooth 1985; Shan 2004). Following Kotek (2016), Griffiths (2019) elevates these difficulties into a constraint with empirical bite. By ‘ $\lambda$ -intervention’, Alternative Semantics is incompatible with Predicate Abstraction. Hence A-bar  $\lambda$ -binders are interveners to focus semantic composition.

In MaxElide paradigms, therefore, the Parallelism Domain (PD) is limited to below the  $\lambda$  involved in wh-movement — approximately the C’ of the CP where wh-movement lands. However, variables (in particular the wh-traces) need to be bound by something, if not by their  $\lambda$ s. If they were left free, focus membership failures would result, as discussed in relation to Takahashi & Fox’s (2005) theory with respect to (5). To address this issue, Griffiths (2019) uses existential closure to bind free variables in A and E in ellipsis licensing calculations. Griffiths’s (2019) analysis of the classic is illustrated in full in (40):

(40) *Griffiths (2019) on the classic case*

\*John ate something, but I don’t know what [TP he did [<sub>VP</sub> eat  $t$  ]].

LF = [ something  $\lambda_9$  [ John ate  $t_9$  ] ], but I don’t know [ what  $\lambda_5$  [ John did eat  $t_5$  ] ]

E = John did eat  $t_5$

$\epsilon$  = eat  $t_5$

$\exists$ -Clo( $\llbracket E \rrbracket$ ) =  $\exists x. \text{eat}'(x)(j)$

$F(\exists\text{-Clo}(\llbracket E \rrbracket)) = \{ \exists x. \text{eat}'(x)(j) \}$

A = John ate  $t_9$

$\exists$ -Clo( $\llbracket A \rrbracket$ ) =  $\exists x. \text{eat}'(x)(j)$

$\exists\text{-Clo}(\llbracket A \rrbracket) \in F(\exists\text{-Clo}(\llbracket E \rrbracket))$

**but**  $\exists\text{-Clo}(\llbracket A \rrbracket) = \exists\text{-Clo}(\llbracket E \rrbracket)$

In detail, Quantifier Raising of *something* creates LF parallelism between the conjuncts. By  $\lambda$ -intervention, PD cannot include the  $\lambda$  involved in wh-movement.<sup>18</sup> Focus membership is evaluated modulo existential closure ( $\exists$ -Clo) over the variables that the illicit  $\lambda$ s would have bound. Modulo  $\exists$ -Clo,  $\llbracket A \rrbracket$  is a member of  $F(E)$ , satisfying focus membership. But, in

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<sup>18</sup>The calculations for the largest possible PD are shown in (40). Any smaller PD will lead to the same result, passing focus membership but failing contrast.



the absence of focus,  $\llbracket A \rrbracket$  is the only member of  $F(E)$ . Ellipsis licensing therefore falls to contrast failure.

As previewed above, Griffiths's (2019) analysis is designed to capture the empirical effects of focus. With intervening focus (38), VPE is good, since the focused material comes below the  $\lambda$  that delimits the upper bound of PD. Superordinate focus in the matrix clause (39), however, is too high to license VPE, lying beyond the  $\lambda$  delimiting PD.

However, Charlow (2020) shows Griffiths's (2019) analysis is unfounded. In the ellipsis licensing calculations in (40),  $\exists$  replaces  $\lambda$ . However, existential closure does not undo the compositional problem for alternative semantics that  $\lambda$ -binders introduce. Any binding, whether by  $\lambda$  or  $\exists$ , is incompatible with standard alternative semantics for the same reason. A fix is available, proceeding from the assumption meanings are functions from assignments to values (Rooth 1985 et seq.). But this fix applies equally to  $\lambda$  and  $\exists$ . These technical considerations leave Griffiths's (2019) analysis reliant on the bald stipulation that existential closure is compatible with alternative semantics while predicate abstraction is not.

Still, even if the letter of Griffiths (2019) is flawed, the spirit is refreshing. Where previous theories appeal to competition from sluicing, Griffiths (2019) treats MaxElide effects as failures of VPE licensing on their own terms. In particular, strengthening focus membership with contrast switches the rhetoric on intervening focus from blocking sluicing to licensing VPE. The rest of this section surveys the empirical landscape of MaxElide from the perspective of contrast. The next subsection evaluates Griffiths's (2019) analysis, assuming a  $\lambda$ -limit on the size of PD by stipulation, before the final subsection proposes revisions.

## 5.2 Griffiths (2019) and MaxElide effects

The previous subsection sketched Griffiths's (2019) account of MaxElide effects as contrast failures, and briefly related the technical flaw exposed by Charlow (2020) regarding  $\lambda$ -intervention. While the  $\lambda$ -limit on PD is reduced to the status of a stipulation, this subsection considers to what extent that stipulation, combined with Griffiths's (2019) insight regarding contrast, is able to account for MaxElide effects. Given Charlow (2020), we will assume a fix that allows  $\lambda$  to be included in PD to bind the A-bar trace, while saying that PD must stop short of the landing site of movement. That is, we explore the terrain of MaxElide effects from the perspective of contrast, with a limit on PD at C' when there is A-bar movement. The next subsection will propose a revised stipulation that reduces the number of auxiliary assumptions required and leads to improved empirical coverage, while continuing to make use of contrast as an explanatory factor.

The list in (41) summarises Griffiths's (2019) analysis:

(41) *Griffiths's (2019) assumptions*

- i. VPE requires contrast  $\llbracket A \rrbracket \neq \llbracket E \rrbracket$  in addition to focus membership  $\llbracket A \rrbracket \in F(E)$ .
- ii. PD must stop short of the landing site of A-bar movement — approximately C'.
- iii. Lower copies of restrictors can bear focus, which counts for contrast.
- iv. Wh-subjects and -adjuncts do not A-bar move in (44).
- v. Indefinites are proper alternatives to wh-words — for contrast and focus membership.

The central idea (i) is to analyse MaxElide effects as contrast failures. This idea survives the criticism in Charlow (2020) and chimes with the thesis of this dissertation. The limit on PD (ii) is the part of Griffiths's (2019) analysis that Charlow (2020) reduces to the status of a stipulation. The combination of contrast (i) and this stipulation (ii) accounts for a classic

MaxElide effect along the lines of (42). PD is as large as it can be by (ii), but fails contrast (i):

(42) *The classic case:* \* $\llbracket A \rrbracket = \llbracket E \rrbracket$

\* John ate something, but I don't know what he did eat  $t$ .

LF = something  $\bar{9}$  John ate  $t_9$ , but I don't know what  $\bar{5}$  John did eat  $t_5$

A =  $\bar{9}$  John ate  $t_9$     E =  $\bar{5}$  John did eat  $t_5$      $\llbracket A \rrbracket = \llbracket E \rrbracket = \lambda x. \text{eat}'(x)(j)$

With respect to the position of focus, the predictions are the same as above. Intervening focus (38) below the landing site of movement is within PD, low enough to count for contrast. Superordinate focus (39) above the landing site of movement, on the other hand, is above PD, too high to count for contrast.

The fact that VPE is good with focused wh-restrictors in (43) (cf. Griffiths 2019: 581, ex. 21a; 588, ex. 45a), however, does not follow from (i) and (ii).<sup>19</sup> The contrast between *GIRL*

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<sup>19</sup>While lower copies of restrictors can be interpreted in their base positions, quantifiers themselves cannot be. Griffiths (2019) therefore predicts that only focused restrictors (43), and not focused quantifiers, should alleviate MaxElide effects. In line with this prediction, Griffiths (2019: 582, ex. 25b) rejects (i):

(i) \* I know WHO John likes  $t$ , but not WHAT he does like  $t$ .

However, (i) might suffer from zeugmaticity on *like*: liking people involves a different sense of *like* than liking things. Accordingly, it might improve with *will mention* in place of *likes*. Schuyler (2001: ex. 48), meanwhile, does not so much mind (ii):

(ii) ? Some guests wondered WHAT Jan would eat  $t$ ,  
and other guests wondered HOW MUCH she would eat  $t$ .

The revisions to Griffiths (2019) in the next subsection will predict that focused quantifiers alleviate MaxElide effects by including them in PD.

and *BOY* comes above the C' limit on the size of PD. Without saying more, (43) would be grouped with (39), where contrast comes too high:

(43) *Focused restrictor* cf. (35c)

? I know which GIRL he kissed, but I don't know which BOY he did ~~kiss-t~~.

Accounting for (43) requires the additional assumption in (iii) that lower copies of restrictors can bear focus (Sauerland 1998). Lower copies of *GIRL* and *BOY* are F-marked in their base positions, the latter inside the ellipsis site. Thus by (iii), (43) is grouped with (38), where focus is inside PD and counts for contrast.

Points (iv) and (v) are required to avoid predicting MaxElide effects with A-bar movement from outside VP (44), as with subjects (a) and adjuncts (b).<sup>20</sup> It must be that (iv) *who* and *when* do not A-bar move in (44). If they did, PD would become limited at a level where there is no contrast, as in the classic case with a moving object:

(44) *Movement from outside VP*

a. *Subject* = (15)

Someone ate cheese, but I don't know who did.

\* [CP who [TP *t* did eat-cheese ] ].

✓[CP [TP who did eat-cheese ] ].

b. *Adjunct* = (16)

John ate cheese, but I don't know when he did.

\* [CP when [TP *t* he did eat-cheese ] ].

✓[CP [TP when he did eat-cheese ] ].

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<sup>20</sup>Throughout this section, 'object' should be read as shorthand for movement from inside the ellipsis site, and 'subject' and 'adjunct' for movement from outside the ellipsis site. Recall section 3.2 and see Appendix A.

Further, it must be that (*v*) *who* and *when* count for contrast. That is, indefinites and *wh*-words must differ in meaning:  $\llbracket \text{someone} \rrbracket \neq \llbracket \text{who} \rrbracket$ ,  $\llbracket \text{something} \rrbracket \neq \llbracket \text{what} \rrbracket$ , etc. At the same time, the *wh*-words must be focused, and have the corresponding indefinite as a focus alternative.<sup>21</sup>

Turning to ‘double *wh*’ cases, (45) is ruled out in the same way as the classic object case in (40). A-bar movement of *what* imposes a  $\lambda$ -limit on PD at embedded C’, inside which there is no contrast:

(45) *Double wh, object*

\* BETH knows what John will eat. CAROL also knows what  $\lambda$  he will eat  $t$ .

A = E = John will eat     \*  $\llbracket A \rrbracket = \llbracket E \rrbracket = \lambda x.\text{eat}'(x)(j)$

Though Griffiths (2019) does not explicitly consider double *wh* subject (46) and adjunct (47) sentences, the assumptions in (41) extend to them, if not in exactly the same way as in (44). In (44), contrast was satisfied based on the indefinite in A versus the *wh*-word in E. With two *wh*-words, the ability to satisfy contrast inside the embedded clause is lost. Still, granting that *who* and *when* do not move in (46) and (47), no limit is imposed on the size of PD. PD is thus free to extend up into the matrix clause, with contrast satisfied by the matrix subjects:

(46) *Double wh, subject*

BETH knows who will eat. CAROL also knows who will eat.

(47) *Double wh, adjunct*

BETH knows when John will eat. CAROL also knows when he will eat.

Given the need to look to the higher clause in double *wh* subject and adjunct cases, the next

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<sup>21</sup>The adjunct case (44b) must involve an implicit existential correlate in A (cf. Chung et al. 1995 on sprouting), with which the *wh*-word contrasts. See chapter five, section 6 for a reason to doubt this. Implicit existential agents do not seem to count for contrast in the realm of voice mismatches.

subsection will do the same for the indefinite cases in (44). This will allow us to reduce the number of assumptions in (41).

Finally, the stipulation in (ii) is too strong. As it stands, any A-bar movement imposes a limit on the size of PD. This is the restriction we want for the classic case (42), with A-bar movement out of the ellipsis site. The fact that (ii) applies to movement from above the ellipsis site necessitates the assumption (iv) that *wh*-subjects and *-adjuncts* do not move. Moreover, (ii) applies to movement within an ellipsis site, incorrectly predicting (48) to be bad.<sup>22</sup> In fact, A-bar movement inside the embedded clause is no obstacle to matrix VPE:<sup>23</sup>

(48) *Matrix VPE, embedded A-bar movement* = (22b)

BETH knows what John will eat *t*, and

CAROL also does ~~know what~~  $\lambda$  he will eat *t*.

A =  $\lambda_7$  John will eat *t*    E =  $\lambda_8$  John will eat *t*

$\times$   $\llbracket A \rrbracket = \llbracket E \rrbracket = \lambda x. \text{eat}'(x)(j)$

This bad prediction for (48) is corrected in the next subsection, which attempts to consolidate Griffiths's (2019) assumptions from (41) by revising the stipulation in (ii).

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<sup>22</sup>Recall note 10 on Merchant (2008b) and movement within ellipsis sites.

<sup>23</sup>In addressing a similar issue regarding bound pronouns, Griffiths (2019: 600-602) appeals to E-type pronouns. Applying an E-type pronoun approach to the issue of traces in (48) results in (i). If the embedded clause is pronominalised, then the offending  $\lambda$  disappears. However, the plausibility of this idea is limited by the fact that this hypothesised structure cannot be pronounced in (ii):

(i) BETH knows what John will eat *t*, and CAROL also does ~~knows that/it/so~~.

(ii) ?? BETH knows what John will eat *t*, and CAROL also knows that/it/so.

### 5.3 Prospects for contrast

This subsection proposes a revised version of the central stipulation in Griffiths's (2019) analysis. The revision reduces the number of auxiliary assumptions required and corrects the prediction for (48).

The list in (49) revises Griffiths's (2019) assumptions from (41):

(49) *Revisions to Griffiths's (2019) assumptions*

- i. VPE requires contrast  $\llbracket A \rrbracket \neq \llbracket E \rrbracket$  in addition to focus membership  $\llbracket A \rrbracket \in F(E)$ .
- ii. PD must stop short of **immediately above** the landing site of movement **out of the ellipsis site** — approximately  $\epsilon'$  CP.
- iii. ~~Lower copies of restrictors can bear focus, which counts for contrast.~~
- iv. ~~Wh subjects and adjuncts do not A-bar move in (44).~~
- v. Indefinites are proper alternatives to wh-words — for contrast and focus membership.

First and foremost, we retain (i), as motivated in previous chapters of this dissertation, and continuing to deliver on the spirit of Griffiths (2019) that contrast plays an explanatory role in MaxElide effects. The stipulation in (ii) now includes the moved phrase in PD,<sup>24</sup> and makes direct reference to A-bar movement out of ellipsis sites ( $\epsilon$ ) (cf. Schuyler 2001; Merchant 2008b). As shown below, these revisions allow (iii) and (iv) to be dispensed with. There will also be no need to rely on a difference between indefinites and wh-words for contrast (v), which improves compatibility with analyses of sluicing that require them to be semantically identical (e.g. AnderBois 2011; Barros 2014). The rest of this subsection shows how (49)

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<sup>24</sup>In (49), (ii) requires PD to be the phrase where movement lands. Compare with Takahashi & Fox (2005), for whom PD had to be at least as large as the binder for the trace; and with the letter of Griffiths (2019), where PD had to stop short of the binder.

applies to the data from the previous subsection. The differences between Griffiths's (2019) (41) and the revised (49) are previewed in (50) and (51):

(50) *Contrast and the locus of focus*

Position of focus	Griffiths (2019) (41)	Revised (49)
	contrast in C' when A' movement	contrast in CP when A' movement out of $\epsilon$
intervening	✓	✓
superordinate	*	*
restrictor	✓by (iii)	✓

(51) *Contrast and the locus of A' movement*

Position of A' trace		Griffiths (2019) (41)	Revised (49)
		contrast in C' when A' movement	contrast in CP when A' movement out of $\epsilon$
inside VP	indefinite	*	* by (v)
	double-wh	*	*
outside VP	indefinite	✓by (iv), (v)	✓
	double-wh	✓by (iv)	✓
within VP		✗	✓

To begin, there is no change regarding the locus of focus in the embedded or matrix clause. By (i) and the new (ii), intervening focus in the TP domain (38) continues to be within the limit of PD; while superordinate focus in the matrix clause (39) continues to be above it. However, the goodness of VPE with focused wh-restrictors (43) now follows directly from (i) and (ii). The contrast between *GIRL* and *BOY* falls within the CP limit on



the size of PD. Thus (43) is grouped with (38) without needing to appeal to focused traces inside ellipsis sites (iii).

At the same time, *what* now falls within the CP limit on the size of PD in the classic case of object extraction (cf. 42). The reversal in (v) means that the classic case is still predicted to be ungrammatical. The indefinite *something* in A does not contrast with its corresponding wh-word *what* in E. (Since they share an ordinary meaning, they continue to be alternatives to one another for focus membership.) Hence the classic case falls to contrast failure, as in (52):

(52) *The classic case*

\* John ate something, but I don't know what he did eat *t*.

LF = something 9 John ate *t*<sub>9</sub>, but I don't know what 5 John did eat *t*<sub>5</sub>

A = something 9 John ate *t*<sub>9</sub>    E = what 5 John did eat *t*<sub>5</sub>    \* [[A]] = [[E]]

The same is true of the double-wh case in (45). Movement out of the ellipsis site limits PD at the embedded clause level, in which *what* fails to contrast with *what*.

A-bar movement of subjects and adjuncts launches from a position outside the elided VP. By the new version of (ii), no limit on the size of PD is imposed. There is therefore no need for the assumption (iv) that they do not move.<sup>25</sup> In the double-wh subject (46) and adjunct

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<sup>25</sup>As independent evidence for *who* and *when* not moving in (44), Griffiths (2019: 602f., exx. 90, 91) appeals to *wh-the-hell* questions. The differing results of adding *the hell* to the wh-phrases in (i) shows that an un-moved wh-phrase cannot be *hell*-strengthened (Brame 1978). Likewise in (ii), subject (a) and adjunct (b) indirect questions cannot be *hell*-strengthened:

- (i) Who (the hell) *t* gave [WHAT (\*the hell)] to Sue?
- (ii) a. Someone kissed John. We just don't know [WHO (\*the hell)] did ~~kiss him~~.
- b. Mary kissed John. We just don't know [WHEN (\*the hell)] she did ~~kiss him~~.

(47) cases, PD is free to extend into the higher clause to take account of the contrasting matrix subjects, as before.

In the indefinite subject and adjunct cases (44), contrast cannot be established within the embedded clause, since (v) indefinites and *wh*-words do not contrast. As in the double-*wh* cases, we have to take account of the higher clause, along the lines illustrated for the subject case in (53). Setting A and E to be each conjunct in its entirety straightforwardly addresses contrast. Preserving focus membership, meanwhile, requires allowing the unembedded A to be an alternative to the biclausal E.<sup>26</sup> Concretely, assume that *wh*-words and indefinites denote sets of alternatives, per (a). Then *I don't know* denotes a function from sets of propositions to propositions. One of the alternatives to this function, of the same semantic type, is the one in (b), which we attribute to a silent operator OP. This function, taking  $\llbracket$ someone ate cheese $\rrbracket$  as its argument, yields the meaning in (c), which is the propositional meaning of *Someone ate cheese*. With OP included in A and focus on *I don't know* (d), focus membership and contrast will be satisfied:

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Griffiths (2019) concludes that *who* and *when* do not move in (ii). However, there does not seem to be a difference between ellipsis in (ii) and the fully pronounced versions in (iii):

- (iii) a. Someone kissed John. We just don't know [WHO (\*the hell)] kissed him.
- b. Mary kissed John. We just don't know [WHEN (\*the hell)] she kissed him.

Without ellipsis licensing considerations forcing the *wh*-words to remain *in situ*, they should be free to move and qualify for *hell*-strengthening. The failure of *hell*-strengthening regardless of ellipsis suggests that other factors are at play.

<sup>26</sup>Quite apart from the issue of MaxElide effects, something along these lines is necessary for ellipsis licensing to respect contrast in a case like (i):

- (i) John eats cheese, because Mary tells him to eat cheese.

(53) *Subject* = (15)

Someone ate cheese, but I don't know who (*t*) did eat cheese.

- a.  $\llbracket \text{someone ate cheese} \rrbracket = \llbracket \text{who ate cheese} \rrbracket = \{ \lambda w. \text{eat}'_w(c)(x) \mid x \in D_e \}$
- b.  $\llbracket \lambda Q. \lambda w. \exists p \in Q. p(w) \rrbracket = \llbracket \text{OP} \rrbracket$
- c.  $\llbracket \lambda Q. \lambda w. \exists p \in Q. p(w) \rrbracket (\{ \lambda w. \text{eat}'_w(c)(x) \mid x \in D_e \}) = \lambda w. \exists x. \text{eat}'_w(c)(x)$
- d. A = OP someone ate cheese    E = [I don't know]<sub>F</sub> who (*t*) did eat cheese

Finally, directly referencing movement out of an ellipsis site in (ii) corrects the bad prediction for (48). Just as the new (ii) places no limit on the size of PD when movement launches from above the ellipsis site, it also does not limit PD when movement occurs within an ellipsis site. Thus (ii) correctly rules in (48) as in (54), where A-bar movement inside the embedded clause is no obstacle to matrix VPE. PD is free to extend all the way up into the higher clause and take account of the contrasting matrix subjects:

(54) *Matrix VPE, embedded A-bar movement*

BETH knows what John ate *t*, and CAROL also does ~~know what he ate *t*~~.

A = BETH knows what John ate *t*    E = CAROL knows what John ate *t*

$\llbracket A \rrbracket \neq \llbracket E \rrbracket$

In sum, the revised (ii) shifts the limit of PD from C' to CP, and links the imposition of this limit to movement out of the ellipsis site. As a result, there is no need for Griffiths's (2019) additional assumptions regarding focused restrictors (iii) and the *in situ* position of wh-subjects and adjuncts (iv). We can also reverse the assumption regarding contrastivity (v). Saying that indefinites and wh-words do not contrast sits more peaceably with accounts of sluicing based on them being semantically identical (e.g. AnderBois 2011; Barros 2014).

Overall, this section hopes to have laid out the prospects for an analysis of MaxElide effects based on contrast. Griffiths's (2019) attempt to derive a  $\lambda$ -limit on PD is unfounded (Charlow 2020), but his insight that contrast plays a role stands. Following Griffiths (2019)

in limiting PD at C' when there is movement to Spec,CP requires the set of assumptions in (41). These assumptions were consolidated in (49) by limiting PD at CP when there is movement out of an ellipsis site. Of course, (ii) is for now a gross stipulation. To the extent that (ii) can be derived in future work, we would have an account of MaxElide effects that not only respects, but embraces, the contrast condition.

## 6 Conclusion

This chapter started out from a point of tension between the thesis of this dissertation and traditional accounts of MaxElide effects in terms of competition. Subjecting ellipsis to a contrast requirement,  $\llbracket A \rrbracket \neq \llbracket E \rrbracket$ , is in tension with the standard family of analyses of MaxElide effects, which crucially allow  $\llbracket A \rrbracket = \llbracket E \rrbracket$ . Sections 2-4 of this chapter critically surveyed competition-based theories of MaxElide effects and found them to be inadequate, thus easing the tension. Section 5 then evaluated the prospects for an account of MaxElide effects that places the explanatory burden on contrast.

With the stipulation in (49ii), section 5 ended up by directly referencing A-bar traces inside ellipsis sites, circling back to Schuyler's (2001) generalisation (13). Merchant's (2008b) also directly references A-bar traces in his MaxElide constraint (2), but attempts to derive the effect from the economy of eliding more. Subsequently, competition theories have avoided direct reference to A-bar traces by indirectly referencing their effects: A-bar traces force PD to be a certain size (Takahashi & Fox 2005; Griffiths 2019), co-occur with sluicing (Messick & Thoms 2016), or raise semantic types (Jacobson 2019a,b). Instead, A-bar traces themselves (inside ellipsis sites) may prove to be the problem.

Two appendices follow this conclusion. Appendix A provides further evidence that MaxElide effects arise only with A-bar movement from inside the elided VP. Appendix B charts Hartman's (2011) expansion of the empirical domain of MaxElide effects from elliptical indirect to direct questions.

## 7 Appendix A: More on the locus of A-bar movement

This appendix provides further evidence for the empirical generalisation, due to Schuyler (2001), that MaxElide effects arise only with movement from inside and not outside the elided VP. The locus of A-bar movement can be dissociated from factors such as grammatical function, embedding, and sprouting.

As previewed in section 3.3, the crucial factor in the goodness of VPE with matrix subjects (15) and adjuncts (16) is not subject-hood or adjunct-hood *per se*, but the fact that A-bar movement launches from above the elided VP. This can be seen by considering A-bar movement out of complements to an elided verb. Reviewing (17) and (18), embedded subjects (55) and adjuncts (56) give rise to MaxElide effects just as much as a matrix object in the classic case, since A-bar movement launches from inside the elided VP:

(55) *Embedded subject*

Mary thinks someone ate cheese, but I don't know . . .

- a. who she thinks *t* ate cheese.
- b. who ~~she thinks~~ *t* ate cheese.
- c. \* who she does think ~~*t*~~ ate cheese.

(56) *Embedded adjunct*

Mary thinks John ate cheese, but I don't know . . .

- a. when she thinks [ he ate cheese *t* ].
- b. when ~~she thinks~~ [ ~~he ate cheese~~ *t* ].
- c. \* when she does think [ ~~he eat~~ cheese *t* ].

Further to the issue of grammatical function, launching movement from inside the ellipsis site is the crucial factor in (55) and (56), not embedding *per se*. Eliding the lower clause VP leaves the trace of the embedded subject (57) and embedded adjunct (58) (Hartman 2011: 373, note 11) outside the ellipsis site, and VPE is again grammatical:<sup>27</sup>

(57) *Embedded subject, lower VPE*

Mary thinks someone ate cheese, but I don't know who she thinks *t* did eat-~~cheese~~.

(58) *Embedded adjunct, lower VPE*

Mary thinks John ate cheese, but I don't know when she thinks [ he did eat-~~cheese t~~ ].

With an embedded object in (59) (cf. Messick & Thoms 2016: 312, exx. 22, 25, however, the MaxElide effect with higher VPE in (c) persists with lower VPE in (d), since the trace is still inside the ellipsis site):

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<sup>27</sup>The lower VPE examples in (57) and (58) could be levied as an argument against some competition-based accounts of sluicing, depending on the role played by traces of successive cyclic movement. Both Takahashi & Fox (2005) and Messick & Thoms (2016) need the *eat*-clause to count as a legitimate PD, with the intermediate *wh*-trace sufficing to close off the domain. Otherwise the smallest PD would be the *think*-clause. Maximal ellipsis (Takahashi & Fox 2005) would then predict only sluicing to be possible, and not lower VPE. Meanwhile for Messick & Thoms (2016), sluicing would be preferred to lower VPE, which involves successive cyclic movement steps through CP and the vP headed by *think*.

Successive cyclic traces would again have to count as creating legitimate PDs for Takahashi & Fox (2005) to correctly predict lower VPE to be possible in (i) from Griffiths (2019: 583, ex. 26a):

- (i) I know who JO thinks he'll kiss and also who BO thinks he will kiss-*t*.

(59) *Embedded object*

- a. Mary thinks John ate something, but I don't know what she thinks he ate *t*.
- b. Mary thinks John ate something, but I don't know what she ~~thinks he ate~~ *t*.
- c. \* Mary thinks John ate cheese, but I don't know what she does ~~think he ate~~ *t*.
- d. \* Mary thinks John ate cheese, but I don't know what she thinks he did ~~eat~~ *t*.

Thus A-bar movement of a subject or adjunct has just as much potential to cause a MaxElide effect as an object. The determining factor is whether movement launches from inside the elided VP.<sup>28</sup>

Grammatical function and the locus of A-bar movement are dissociated in the opposite direction in (60). Matrix clause objects feature in the classic paradigm, but do not give rise to MaxElide effects when they sit outside the ellipsis site in (c) (Nakamura 2016: 122, ex. 53, credited to Steven Ryan):

(60) *Matrix object outside  $\epsilon$*

John asked someone if Mary passed the exam, but . . .

- a. I don't know who he ~~asked~~ *t* if ~~Mary passed the exam~~.
- b. \* I don't know who he did ~~ask~~ *t* if ~~Mary passed the exam~~.
- c. I don't know who he asked *t* if she did ~~pass the exam~~.

Thus matrix objects, while usually inside an elided VP, do not give rise to MaxElide effects when they are outside it. Similar reasoning applies, with the opposite effect, to adverbs. While adverbs are usually adjuncts, subcategorised adverbials are VP-internal and therefore give rise to MaxElide effects as in (61) (Hartman 2011: 376, fn. 13, credited to Mark Baltin):

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<sup>28</sup>See Thoms (2014) for an argument that subject A-bar movement launches from inside the ellipsis site in Scottish Gaelic verbal ellipsis, with MaxElide effects arising accordingly.

(61) *Subcategorised adverb*

- a. Mary became angry, but we don't know how angry she became *t*.
- b. Mary became angry, but we don't know how angry ~~she became~~ *t*.
- c. \* Mary became angry, but we don't know how angry she did ~~become~~ *t*.

Furthermore, MaxElide effects cut across the divide between sluicing and sprouting. We have seen that sprouted adjuncts generally do not give rise to MaxElide effects (16, 58), but sometimes do (56), depending on the locus of A-bar movement. The judgements pattern the same way in (62), which provides an indefinite correlate to sluice to:

(62) *Adjunct sluicing*

- a. John ate cheese at some point, but I don't know  
when [ he did eat ~~cheese~~ *t* ]. cf. (16c)
- b. Mary thinks John ate cheese at some point, but I don't know  
when she thinks [ he did eat ~~cheese~~ *t* ]. cf. (58)
- c. \* Mary thinks John ate cheese at some point, but I don't know  
when she does ~~think~~ [ he eat ~~cheese~~ *t* ]. cf. (56c)

In the same vein, sprouting an implicit argument involves movement from inside VP, and accordingly gives rise to a MaxElide effect in (63):

(63) *Sprouted implicit object*

- a. John ate, but I don't know what he ate *t*.
- b. John ate, but I don't know what ~~he ate~~ *t*.
- c. \* John ate, but I don't know what he did eat *t*.



Thus MaxElide effects pattern according to whether A-bar movement launches from inside as opposed to outside the ellipsis site, regardless of whether the ‘competing’ (b) member of the paradigm is derived by sluicing or sprouting.

Finally, A-bar movement out of ditransitive VPs gives rise to MaxElide effects just as much as movement out of transitive VPs. There are, somewhat tryingly, 2x2 ways to test ditransitives, crossing the double vs. prepositional object construction with direct vs. indirect object as the sluice correlate. As expected, VPE (c) is bad in all cases:

(64) *Double, Direct*

- a. John gave Mary something, but I don’t know what he gave her *t*.
- b. John gave Mary something, but I don’t know what ~~he gave her~~ *t*.
- c. \* John gave Mary something, but I don’t know what he did ~~give her~~ *t*.

(65) *Double, Indirect*<sup>29</sup>

- a. % John gave someone the book, but I don’t know who he gave *t* the book.
- b. John gave someone the book, but I don’t know who ~~he gave~~ *t* ~~the book~~.
- c. \* John gave someone the book, but I don’t know who he did ~~give~~ *t* ~~the book~~.

(66) *Prepositional, Direct*

- a. John gave something to Mary, but I don’t know what he gave *t* to Mary.
- b. John gave something to Mary, but I don’t know what ~~he gave~~ *t* ~~to Mary~~.
- c. \* John gave something to Mary, but I don’t know what he did ~~give~~ *t* ~~to Mary~~.

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<sup>29</sup>A-bar moving the indirect object of a double object construction (65a) is degraded in American English, but fine in British English. Sluicing (b) removes any degradation, per its general ameliorating powers; cf. island violations (Rooth 1985).

(67) *Prepositional, Indirect*<sup>30</sup>

- a. John gave the book to someone, but I don't know who he gave it to *t*.
- b. John gave the book to someone, but I don't know who he ~~gave it to~~ *t*.
- c. \* John gave the book to someone, but I don't know who he did ~~give it to~~ *t*.

In sum, Schuyler's (2001) generalisation that MaxElide effects arise with movement from inside and not outside the ellipsis site is very robust. This appendix has shown that the locus of A-bar movement is the conditioning factor, as opposed to grammatical function, embedding, or sluicing versus sprouting.

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<sup>30</sup>While preposition stranding is shown in (67), the judgements remain the same with pied-piping (*to who(m)*) and swiping (*who to*).

## 8 Appendix B: Elliptical direct questions

This appendix considers the terrain of MaxElide effects in direct questions. For the most part, research on MaxElide effects, this chapter included, has observed and accounted for data only from ‘sluicing configurations’ consisting of a declarative antecedent and an elliptical indirect question. At the end of section 4.1, however, we considered the challenge to the competition theories posed by question-answer pairs. With adjuncts (68) (Hartman 2011: 378, ex.31), VPE (c) goes bad in a direct question. Competition can attribute the badness of VPE (c) to the goodness of clausal ellipsis (b). Fulfilling the competition logic, with focus blocking clausal ellipsis (b) in (69) (cf. Hartman 2011: 385, ex. 51), VPE (c) is good:

(68) *Adjunct question* = (26)

John ate cheese.

- a. When did he eat cheese?
- b. When ~~he ate cheese~~?
- c. \* When did he eat ~~cheese~~?

(69) *Adjunct question, Focus* = (27)

John ate cheese.

- a. (Hmm, interesting.) When did BILL eat ~~cheese~~?
- b. ✗ (Hmm, interesting.) When ~~BILL ate cheese~~?
- c. (Hmm, interesting.) When did BILL eat ~~cheese~~?

The problem comes with object direct questions. While competition can continue to attribute the badness of VPE (c) to the goodness of clausal ellipsis (b) in (70) (cf. Hartman 2011: 368, exx. 1c-e), it incorrectly predicts that VPE (c) should become good after focus removes the option of clausal ellipsis (c) in (71) (cf. Hartman 2011: 386, ex. 52):

(70) *Object question* = (28)

John ate something.

- a. What did he eat?
- b. What ~~he ate~~ *t*?
- c. \* What did he eat *t*?

(71) *Object question, Focus* = (29)

John ate something.

- a. (Hmm, interesting.) What did BILL eat *t*?
- b. ✗ (Hmm, interesting.) What ~~BILL~~ ate *t*?
- c. \* (Hmm, interesting.) What did BILL eat *t*?

Thus (71) is a case where VPE is bad, despite facing no competition from clausal ellipsis.

These data from elliptical direct questions were introduced by Hartman (2011). This appendix charts his expansion of the empirical domain of MaxElide effects beyond sluicing configurations. There are two empirical differences from the sluicing configuration: adjunct direct questions are bad without focus (68); and movement out of VP is not ameliorated by focus (71). This appendix presents the basic paradigm (section 8.1), and Hartman's (2011) account of it (section 8.2); followed by the focus paradigm, centred on the problematic (71) (section 8.3), and attempts by Messick & Thoms (2016) (section 8.4) and Griffiths (2019) (section 8.5) to account for it. While no theory is successful on all the data, the empirical generalisation that emerges is that T-to-C movement in elliptical wh-questions requires an antecedent (section 8.6).

## 8.1 Direct questions

In a matrix object question (72), VPE (c) is bad (Hartman 2011: 368, exx. 1c-e):

(72) *Object question*

John ate something.

- a. What did he eat?
- b. What ~~John ate~~ *t*?
- c. \* What did he eat *t*?

The competition theories all correctly predict (c) to be bad, just the same as a classic MaxElide effect (recall section 2). To review, for Merchant (2008b) VP is an elided constituent containing an A'-bar trace (c), but TP is also a possible target for deletion (b). Since TP properly contains VP, VPE (c) is ungrammatical. For Takahashi & Fox (2005) and Messick & Thoms (2016), the smallest possible PD, which must include the binder for the A-bar trace, is the whole clause. In this PD, maximal elision yields clausal ellipsis (b), ruling out VPE (c) (Takahashi & Fox 2005); or sluicing (b) beats VPE (c) (Messick & Thoms 2016). Finally, for Jacobson (2019a,b) ellipsis of  $\langle e, t \rangle$  (b) beats ellipsis of  $\langle e, \langle e, t \rangle \rangle$  (c).

In a matrix subject question (73), VPE (c) is good (Hartman 2011: 375, exx. 22c,d):

(73) *Subject question*

Someone ate cheese.

- a. Who ate cheese?
- b. Who did eat ~~cheese~~?
- c. Who ~~ate~~ *cheese*?

The competition again all correctly predict (c) to be good, just as movement from outside VP was good in the sluicing configuration (recall section 3.2). With no A-bar trace in the ellipsis site, Merchant's (2008b) MaxElide does not apply; Takahashi & Fox (2005) allow PD = VP;

there is no uneconomical Spec,vP movement trace for Messick & Thoms (2016) to prefer sluicing over VPE; and for Jacobson (2019a,b), VPE and clausal ellipsis tie on ⟨e,t⟩.

In a matrix adjunct question (74), however, VPE is bad. This is a change from the sluicing configuration, where VPE was fine (cf. Hartman 2011: 378, ex.31):

(74) *Adjunct question*

John ate cheese.

- a. When did he eat cheese?
- b. When ~~he ate cheese~~?
- c. \* When did he eat ~~cheese~~?

All the competition theories fail on (74). Just as for the subject case, Merchant (2008b), Takahashi & Fox (2005) and Jacobson (2019a,b) all predict that VPE (c) should be allowed with A-bar movement from outside VP.<sup>31</sup>

Thus VPE in matrix adjunct questions switches from good when indirect to bad when direct, as circled in (75):

(75) *VPE in indirect versus direct questions: Hartman's target*

VPE	object	subject	adjunct
indirect question	*	✓	✓
direct question	*	✓	⊗

Hartman (2011) observes this switch, and sets out to account for it. The next subsection outlines his analysis, which takes particular heed of T-to-C movement.

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<sup>31</sup>Messick & Thoms (2016) also incorrectly predict VPE to be good in (74). They offer an account of the elliptical direct question paradigm in this subsection along with the focus paradigm introduced in section 8.3. As such, further discussion of their theory is postponed to section 8.4.

## 8.2 Hartman (2011): all movement is $\lambda$ -binding

Hartman (2011) proposes a friendly amendment to Takahashi & Fox's (2005) theory based on syntactic size competition. As in Takahashi & Fox (2005), the focus membership condition on ellipsis from (6) requires licensing calculations where the Parallelism Domain (PD) includes the binder for any bound variables. In an object direct question (72), A-bar movement out of the ellipsis site forces PD to be clausal. Maximal elision in this PD yields sluicing (b), correctly predicting VPE (c) to be bad.

With the aim of accounting for why VPE in direct direct questions (74) turns bad, Hartman (2011) proposes that, in addition to A-bar movement, A-movement and head movement count for parallelism calculations. That is, A-movement and head movement leave behind variables that must be  $\lambda$ -bound. For a matrix adjunct question (74), this leads to the representation in (76), where the smallest possible PD is underlined (cf. Hartman 2011: exx. 32d, 34-38):

(76) *Adjunct direct question*

[CP when  $\lambda x$ . will  $\lambda z$ . [TP x [TP she  $\lambda y$ . z [VP y eat cheese ] ] ] ]]

The interleaving of A-bar movement of *when* from TP to CP (x), head movement of *will* from T-to-C (z), and A-movement of the subject *she* from VP to TP (y) together conspire to force a clausal PD. At every lower point, there is an unbound variable: x down to Spec,TP, z down to T, and y down to Spec,VP.<sup>32</sup> Maximal elision in this PD, per Takahashi & Fox's (2005) version of MaxElide, derives clausal ellipsis, ruling out VPE. Thus it is crucial that A- and head movement are represented, in addition to A-bar movement. If A-movement (y) was not represented, VP would be a fine choice for PD. And if head movement (z) was not

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<sup>32</sup>Notice that the V' constituent *eat cheese* would be a legitimate PD. Hartman's (2011) analysis thus relies on the reasonable assumption that VPE targets a higher projection than the one dominating only the verb and its object.

represented, the inner TP could be PD — as it can be for an adjunct indirect question, where VPE is allowed.

This strategy for ruling out VPE in a matrix adjunct direct question does not make any unwanted changes to predictions for the data we have seen so far. T-to-C head movement is central in (76) in linking together the A-bar and A-movement chains. The schematic in (77) illustrates what happens without T-to-C, as in subject questions (73) and indirect adjunct questions (Hartman 2011: e.g. exx. 32e, f, 40). There will be a piece of structure smaller than TP to serve as PD, where all variables to that point are bound off. Maximal elision in this smaller PD will yield VPE:

(77) *No T-to-C, no A-bar movement from VP*  
 [CP wh-phrase  $\lambda x$ . [TP x [ . . . . . ] ] ]

Thus Hartman (2011) amends Takahashi & Fox (2005) to correctly predict that VPE is bad in matrix adjunct direct questions (76), while maintaining Takahashi & Fox's (2005) correct predictions on the other basic data. However, Hartman's (2011) theory is unable to explain why intervening focus loses its ameliorating effect on A-bar movement out of VP, as shown in the next subsection.

### 8.3 Direct questions with focus: Hartman's puzzle

We have seen that direct questions present two empirical differences from the classic MaxElide paradigm with indirect questions. One is that VPE turns bad with adjuncts (74), as Hartman's theory is designed to account for. The other concerns the effect of focus. As previewed in (29), and as Hartman (2011: 386, ex. 52) observes, focus no longer ameliorates VPE when there is A-bar movement out of VP (78):<sup>33</sup>

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<sup>33</sup>Again, the crucial factor is extraction from VP rather than argumenthood. Focus also fails to ameliorate the embedded adjunct question in (i), since there is extraction from the



(78) *Object question, Focus*

John ate cheese.

- a. \* (Hmm, interesting.) What did BILL eat *t*?
- b. \* (Sheesh, tell me about it:) What DOESN'T he eat *t*?

Hartman (2011) incorrectly predicts VPE to be good in (78) (Messick & Thoms 2016: 310). As in Takahashi & Fox (2005), A-bar movement of the object forces PD to be clausal. But since focus in TP bleeds sluicing, maximal elision in this PD should yield VPE. While this prediction is contrary to fact in (78), any fix needs to take account of the fact that focus does continue to have an ameliorating effect in adjunct direct questions, since VPE is good in (79) (cf. Hartman 2011: 385, ex. 51):

(79) *Adjunct question, Focus*

John ate cheese.

- a. (Hmm, interesting.) When did *t* BILL eat ~~cheese~~?
- b. (Sheesh, tell me about it:) When DOESN'T *t* he eat ~~cheese~~?

Reasoning in terms of syntactic size competition succeeds here. Just as for adjunct questions without focus, the interleaving of A-bar, A- and head movement forces PD to be the whole clause. However, since focus inside TP blocks clausal ellipsis, maximal elision in this PD yields VPE in (79).

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elided VP (cf. Hartman 2011: 386, ex. 54):

(i) *Adjunct embedded question, Focus*

Mary thinks John ate something.

- a. \* (Hmm, interesting.) When does BILL think ~~*t* John ate cheese~~?
- b. \* (Sheesh, tell me about it:) When DOESN'T she think ~~*t* John eat cheese~~?

Thus we are left with “Hartman’s puzzle”, circled in (80), as to why intervening focus does not ameliorate MaxElide effects in direct adjunct questions:

(80) *VPE with intervening focus in indirect versus direct questions: Hartman’s puzzle*

VPE + focus	object	subject	adjunct
indirect question	✓	✓	✓
direct question	⊗	✓	✓

The next subsection considers Messick & Thoms’s (2016) response to Hartman’s puzzle. Their analysis corrects the prediction for object direct questions with focus (78), but undoes Hartman’s (2011) work to rule out the adjunct direct question without focus (74).

#### 8.4 Messick & Thoms (2016) on Hartman’s puzzle

Messick & Thoms (2016) double down on T-to-C movement being the main issue for direct questions. They isolate T-to-C as the problem with Hartman’s puzzling (78), where focus fails to ameliorate VPE in an object direct question. They show that A-bar movement out of VP along with focus in TP can in fact be good along with focus in TP, provided that the antecedent is also a direct question rather than a declarative, as in (81) (cf. Messick & Thoms 2016: 310, ex. 17):

(81) *2 x Direct question, Object, Focus*

What did John eat *t*?

- a. (I dunno.) What did BILL eat *t*?
- b. What DIDN’T he eat *t*?

Messick & Thoms (2016) conclude that T-to-C must take place in parallel in A and E. This new constraint rules in (81), and rules out the problematic (78).

However, a T-to-C parallelism constraint threatens to incorrectly rule out adjunct direct questions with focus. In (79) there is no T-to-C parallelism, yet ellipsis is good. To resolve

this, Messick & Thoms (2016) propose that a smaller PD is available for (79), below the point at which the T-to-C mismatch is visible. They represent A-bar and head movement with  $\lambda$ -binding, but not A movement. For the reasons discussed with respect to (34) in section 4.2, they assume that auxiliaries originate in vP. The resulting representation for (79) is (82) (Messick & Thoms 2016: 323, ex. 61):

(82) [CP when  $\lambda x$ . will  $\lambda z$ . [TP x [TP she z  $\lambda z'$ . [vP z' [VP eat cheese ] ] ] ] ] ] ]

The underlined constituent is a legitimate PD. The first, auxiliary-raising step of head movement (z) is bound off; while A-bar movement (x) is yet to launch. In particular, T-to-C movement only happens above this PD, so T-to-C parallelism is satisfied vacuously. With no competition from clausal ellipsis, VPE is licensed in this PD.

However, the availability of this small PD is in no way contingent on focus. If the representation in (82) is available for (79), then it should also be available for an adjunct direct question without focus (74), where VPE is in fact bad. Thus Messick & Thoms (2016) incorrectly predict VPE in an adjunct direct question without focus (74) to be good.

In sum, Messick & Thoms (2016) propose a solution to Hartman's puzzle as to why focus fails to ameliorate VPE in object direct questions. Their analysis does indeed correctly predict that ellipsis will be bad in (78). However, in so doing, and while trying not to undergenerate adjunct direct questions with focus (79), Messick & Thoms (2016) overgenerate adjunct direct questions without focus (74).

Thus Messick & Thoms's (2016) proposed solution to Hartman's puzzle undoes the analysis of Hartman's target. The next subsection considers Griffiths's (2019) proposal for elliptical direct questions, which covers the same empirical ground as Hartman (2011).

## 8.5 Griffiths (2019) on direct questions

Griffiths (2019: 603, note 26) proposes an alternative to Hartman's (2011) theory of elliptical direct questions. However, Griffiths' proposal is extensionally equivalent to Hartman's, in that Hartman's puzzle remains.

Recall that the crucial data point Hartman (2011) aims to account for is (83). Compared to sluicing configurations, in direct questions A-bar moving the object remains bad, subject remains good, whereas adjuncts turn bad (cf. Hartman 2011: 378, ex. 31):

(83) *Adjunct question* cf. (74)

John ate cheese.

- a. When  $\lambda$  did he eat cheese ?
- b. \* When  $\lambda$  did *t* he eat ~~cheese~~?

For Griffiths (2019), subjects and adjuncts do not cause MaxElide effects in the sluicing configuration because they remain *in situ* rather than moving to Spec,CP. This movement would anyway be string vacuous in indirect questions, where there is no T-to-C movement of the auxiliary. In the direct question in (83), however, *when* unambiguously moves to Spec,CP, since T-to-C movement inverts the order of the auxiliary and the subject. Wh-movement creates  $\lambda$  binding, which for Griffiths (2019) limits the size of PD, and places the wh-phrase beyond it. VPE therefore fails due to lack of contrast. Intervening focus provides contrast below the  $\lambda$ , rendering VPE good in (84).

(84) *Adjunct question, Focus* cf. (79)

John ate cheese.

- a. (Hmm, interesting.) When  $\lambda$  did *t* BILL eat ~~cheese~~?
- b. (Sheesh, tell me about it:) When  $\lambda$  DOESN'T *t* he eat ~~cheese~~?

However, applying these assumptions more broadly, Griffiths (2019) predicts, like Hartman (2011), that intervening focus should have the same positive effect on VPE with

object movement. As (85) reminds us, this is contrary to fact:

(85) *Object question, Focus* cf. (78)

John ate something.

- a. \* (Hmm, interesting.) What  $\lambda$  did BILL eat $\neq$ ?
- b. \* (Sheesh, tell me about it:) What  $\lambda$  DOESN'T he eat $\neq$ ?

In sum, Griffiths (2019) comes with an alternative to Hartman (2011) for a theory of VPE failures in direct questions. However, the empirical coverage is the same, in particular leaving unexplained Hartman's puzzle of why intervening focus fails to make VPE good with extraction from VPE.

Overall, Hartman's puzzle remains unresolved. Messick & Thoms's (2016) proposal rules out the puzzling object direct questions with focus (78), but allows in Hartman's target of adjunct direct questions (74); while Griffiths (2019) covers the same ground as Hartman (2011) in a different way. The final subsection considers the circumstances under which T-to-C movement interferes with ellipsis licensing.

## 8.6 More on T-to-C

To recap the kinds of data we have seen so far, the competition theories of MaxElide were based on data in the 'sluicing configuration', with a declarative antecedent and an elliptical indirect question. Hartman (2011) then introduced data still with a declarative antecedent, but an elliptical direct question. Lastly, Messick & Thoms (2016) introduced the data point in (81), with two object direct questions and focus. This subsection considers further mixtures of declaratives, indirect and direct questions to investigate the role played by T-to-C movement in ellipsis licensing.

To begin where the previous subsection left off, we can clarify that focus is crucial to Messick & Thoms's (2016) (81) being good. Without focus, parallel T-to-C is not sufficient

to make VPE good in an object direct question in the corresponding (86):<sup>34</sup>

(86) *2 x Direct question, Object*

What did John eat *t*?

- a. (I dunno.) What did he eat?
- b. \* (I dunno.) What did he ~~eat~~ *t*?
- c. \* (I dunno.) What ~~he ate~~ *t*?

Like (81), (86) presents a problem for competition theories: VPE (b) is bad, despite facing no competition from sluicing (c).

Delving further, we can see that the syntax of T-to-C movement is the issue with ellipsis licensing here, as opposed to other factors that might differ in the syntax or semantics of declaratives, indirect questions, and direct questions. Hartman (2011) presents data from non-standard varieties of English where ellipsis licensing tracks T-to-C rather than the indirect versus direct nature of the question. Indian Vernacular English (IVE; Bhatt 2000: 74f.) is the mirror image of Standard English with regard to subject-auxiliary inversion. It has T-to-C movement in embedded questions, and lacks it in matrix wh-questions:

(87) *Indian Vernacular English: reverse T-to-C*

- a. I asked Ramesh what did he eat for breakfast. *embedded, T-to-C*
- b. What he has eaten? *matrix, no T-to-C*

Sure enough, IVE has the reverse of Standard English MaxElide effects with matrix adjunct questions (Hartman 2011: 382, exx. 43a, 44a):<sup>35</sup>

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<sup>34</sup>Uttering *What?* in (86c) is good on an irrelevant reading, somehow abbreviating ‘What did you say?’ or ‘What are you saying?’

<sup>35</sup>Hartman (2011: 382, ex. 45) also shows that Irish English patterns like IVE for embedded questions.

(88) *Indian Vernacular English: reverse adjunct MaxElide effects*

- a. \* Mary will leave, but I don't know when will she leave. *T-to-C, no VPE*
- b. A: Mary will leave. B: When she will leave? *no T-to-C, VPE*

The same can be shown in standard English with *how come*, which does not trigger T-to-C. Without it, unlike standard adjunct direct questions (74), a direct *how come* question like (89) allows VPE in (b):

(89) *Direct how come question*

John eats cheese.

- a. How come John eats cheese?
- b. How come *t* he does eat-cheese?
- c. How come *t* he eats-cheese?

It is further possible to isolate T-to-C movement and show that, even in the absence of wh-movement, T-to-C solves the problem for adjunct direct questions. While a wh-question might not be felicitous in response to a polar question (cf. Park & Han (2016: 458, ex. 38-41)), a wh-question can be used as a follow-up to a polar exclamation. In (90), T-to-C in the polar exclamation antecedent supports VPE (b) in an adjunct direct question:

(90) *Exclamative T-to-C*

(Boy!) Does John eat cheese!

- a. (Really?) When does he eat cheese?
- b. (Really?) When does he eat-cheese?
- c. (Really?) When?

So far, this subsection has shown that T-to-C movement in the antecedent is crucial to licensing VPE with T-to-C above it; in other words, T-to-C needs an antecedent. However, it would be too hasty to make 'T-to-C parallelism' a blanket requirement on VPE, for two reasons.

First, the requirement is unidirectional: if there is T-to-C in E, there needs to be T-to-C in A; but there is no such requirement the other way round. When there is no T-to-C in E, the presence or absence of T-to-C in A is of no consequence. Compared with (90), the judgements remain the same in (91) with an indirect as opposed to direct question as follow-up:

(91) *Exclamative T-to-C, sluice*

(Boy!) Does John eat cheese!

- a. (Really?) I wonder when he eats cheese.
- b. (Really?) I wonder when he does ~~eat cheese~~?
- c. (Really?) I wonder when.

Further, a direct question with T-to-C happily antecedes a sluice without it, as shown for an adjunct in (92), and an object — with necessary intervening focus — in (93):

(92) *Adjunct direct question A, sluice E*

A: When *t* should John eat cheese?

B: I don't know when he should ~~eat cheese~~.

(93) *Object direct question A, sluice E*

A: What should John eat *t*?

B: I don't know. I don't know what BILL should ~~eat *t*~~, either.

The second reason that there is no blanket requirement for T-to-C parallelism with VPE is that in the absence of any A-bar movement in E, T-to-C in E does not need an antecedent. In (94), T-to-C in an elliptical polar question E is fine to take a declarative as antecedent (cf. Park & Han 2016: 459, exx. 42, 43):<sup>36</sup>

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<sup>36</sup>And as in (91, 92, 93), when there is no T-to-C in E, the presence or absence of T-to-C in A continues to be of no consequence in (i) (cf. Park & Han 2016: 459, exx. 44, 45):



(94) *No A-bar movement, T-to-C in E but not A.*

A: John eats cheese.

B: Does he ~~eat cheese~~?

In sum, there is no hard and fast requirement for VPE to come with T-to-C Paralellism. T-to-C is not an issue in itself, but only in concert with wh-movement; and even then, the requirement is unidirectional, with T-to-C in E needing an antecedent in A.

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(i) *No A-bar movement, T-to-C in A but not E.*

A: Does John eat cheese?

B: Indeed he does ~~eat cheese~~.

## CHAPTER FIVE

# Further Directions in Contrast and Ellipsis

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## 0 Eight more things

By studying the interaction of ellipsis with triviality, symmetry, and competition, this dissertation has motivated a focus- (Rooth 1992a; Tancredi 1992) and contrast- (cf. Griffiths 2019) based condition on verb phrase ellipsis (VPE). This necessary condition on VPE is given for the final time in (1):

- (1) For  $\epsilon$  to be elided,  $\epsilon$  must be inside a phrase E that has an antecedent A such that either:
- i.  $[[A]] \in F(E)$  and  $[[A]] \neq [[E]]$ ; or
  - ii.  $[[A]] \subseteq F(E)$

By way of conclusion, this chapter considers eight more respects in which focus and contrast do, and do not, interact with ellipsis. The first section situates this dissertation with respect to Winkler's (2005 et seq.) typology of ellipsis in terms of contrast, broadening from VPE to comment on (pseudo)gapping and clausal ellipsis.

Section 2 builds on chapter three to consider reciprocal ellipsis mismatches involving *each other*. As long as a symmetrical predicate is involved, the analysis of transitivity switching VPE from chapter three is sufficient. But for speakers who accept transitivity switch mismatches with *each other* in the object position of a non-symmetrical predicate, more needs to be said; either with reference to the pieces of *each other* (Hardt 1993, Elliott & Murphy 2019) or its entailment properties.

The remaining sections provide further, at times digressionary commentary on the parallelism condition in (1). Section 3 shows that (1) applies to noun phrase ellipsis, just as much as verb phrase ellipsis; while section 4 shows that tense, unlike intensionality, does not count for focus membership and contrast, though times do. (Two footnoteworthy points

regarding the applicability of (1) to *do so* anaphora<sup>1</sup> and expression focus<sup>2</sup> are included here.) Section 5 explores the interaction of negation and ellipsis. Where previous chapters

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<sup>1</sup>Verb phrase anaphora with *do so* is not subject to a contrast requirement. The pairs in (i) and (ii) are from Johnson (2019), while (iii) is naturally occurring (Parks and Rec S7 E4, Knope to Swanson). The (a) examples with *do so* are perfectly acceptable; this despite the lack of contrasting material, which dooms the minimally paired (b) examples with VPE:

- (i) a. Mom hugged me and did so because she loves me.  
b. \* Mom hugged me and did < > because she loves me.
- (ii) a. Although ellipsis boggles me, it does so only because I'm hard of hearing.  
b. \* Although ellipsis boggles me, it does < > only because I'm hard of hearing.
- (iii) It's up to me to save our friendship.  
a. And I will do so using this well organized chart.  
b. \* And I will (do) < > using this well organized chart.

For full discussion of *do so*, see Houser (2010).

<sup>2</sup>Expression focus (Krifka 2008: 248f.) is compatible with VPE:

- (i) a. Bill<sub>1</sub> isn't coming to the party, WILLiam<sub>1,F</sub> is coming to the party.  
b. Bill<sub>1</sub> isn't coming to the party, WILLiam<sub>1,F</sub> is ~~coming to the party~~.
- (ii) a. It's not the case that Mary were being silly — she WAS<sub>F</sub> being silly.  
b. It's not the case that Mary were being silly — she WAS<sub>F</sub> ~~being silly~~.
- (iii) a. Bill<sub>1</sub> left. Therefore WILLiam<sub>1,F</sub> left.  
b. Bill<sub>1</sub> left. Therefore WILLiam<sub>1,F</sub> did ~~leave~~.

The co-occurrence of expression focus and (metalinguistic (Horn 1985)) negation might allow ellipsis in (i) and (ii) to satisfy the denotation-based requirements imposed by (1) via

showed that negation counts for contrast in VPE, it interferes with clausal ellipsis. A case study finds that *why NOT* behaves as a single fused item in requiring the reason and negation to originate in the same clause. Section 6 argues that differences in the acceptability of ellipsis with voice mismatches, previously attributed to processing effects, can be accounted for in terms of the parallelism condition in (1). Along the way, we see that overt indefinites provide a means of contrast that implicit existentials do not. Section 7 studies the paradigm of ‘Kuno-Levin effects’ where clause (ii) of (1) wrongly predicts that ellipsis licensing should track question-answer congruence. Finally, section 8 relates a fact about the interaction of *only*, focus, and ellipsis, which lies beyond the purview of the focus-based condition on ellipsis in (1).

## 1 Contrast, ellipsis, and focus

This section aims to situate the parallelism condition in (1), and in particular its incorporation of the contrast condition, in the context of Winkler’s typology of ellipsis and focus. A large body of work by Winkler — e.g. Winkler (2016) and Winkler (2018), stemming from Winkler & Konietzko (2010) and Winkler (2005)<sup>3</sup> — divides ellipsis into two types, contrastive and non-contrastive. Contrastive ellipsis, exemplified in (2), includes pseudogapping (a), gapping (b), and bare argument ellipsis (BAE), also known as stripping (c). Contrastive ellipsis is governed by the Contrastive Remnant Hypothesis, according to which given or redundant information licenses a contrastive interpretation of remnants with respect to their

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polarity contrast. However, such an approach would not generalise to (iii), where there is no negation. It therefore seems that there needs to be a version of (1) that makes reference to alternative expressions rather than alternative denotations.

<sup>3</sup>In Winkler (2005), this distinction is arranged less in terms of contrast, and instead between sentence-bound (2) and discourse-bound (3) ellipsis.

correlates. Hence *TENNIS*, an object remnant that survives ellipsis, is contrastively focused throughout (2):

(2) *Contrastive ellipsis*

- a. Sandy plays SOCCER, and ANNA does ~~play~~ TENNIS. *Pseudogapping*
- b. Sandy plays SOCCER, and ANNA ~~plays~~ TENNIS. *Gapping*
- c. Sandy plays SOCCER, and TENNIS ~~she~~ ~~plays~~, too. *Stripping*

Non-contrastive ellipsis, exemplified in (3), includes verb phrase ellipsis (VPE) (a), noun phrase ellipsis (NPE) (b), and tense phrase ellipsis (TPE), also known as sluicing (c). Non-contrastive ellipsis is governed by the Givenness Marking Hypothesis, according to which given material is deaccented or deleted at Phonological Form.<sup>4</sup> From this perspective, ellipsis throughout (3) is fundamentally about the sameness of the elided material and its antecedent:

(3) *Non-contrastive ellipsis*

- a. Sandy plays cricket, and Anna does ~~play~~ ~~cricket~~, too. *VPE*
- b. Sandy plays two sports, while Anna plays three ~~sports~~. *NPE*
- c. Sandy plays something, but I don't know what ~~she~~ ~~plays~~. *TPE*

On the one hand, including the contrast condition in clause (i) of (1) strongly challenges this dichotomy between contrastive and non-contrastive ellipsis. According to (1), the crucial factor in ellipsis being contrastive or not is whether the antecedent A denotes a set. When it does, clause (ii) imposes a subsethood requirement. Ellipsis is plausibly licensed based on subsethood in (3c), assuming indefinites introduce alternatives (Kratzer & Shimoyama

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<sup>4</sup>The theory of Simpler Syntax (Culicover & Jackendoff 2005) also takes the view that VPE is fundamentally about sameness, with contrasting constituents optional (Culicover & Jackendoff 2018: 174).

2002). Whenever A does not denote a set, A and the constituent containing ellipsis E must contrast. This dissertation has argued that VPE in (3a) is subject to this contrast requirement, just as much as those in (2). By clause (i), ellipsis licensing relies on there being contrastive focus on *Anna* in (3a). The next section will argue that the same is true of NPE in (3b), which is licensed by contrastive focus on *three*. Thus from the perspective of the parallelism condition in (1), contrast plays a more pervasive and differently delimited role in ellipsis licensing than it does for Winkler.<sup>5</sup>

On the other hand, there remains a clear difference between (2) and (3); if not in the presence versus absence of contrast, then in the amount. According to (1), (3a,b) are necessarily contrastive; but (2a,b) are doubly so, with contrastive focus on both subject and object. Meanwhile stripping (2c) introduces contrast where there was none in sluicing (3c). In this sense, Winkler's dichotomy stands, reframed as more versus less contrastive ellipsis.

Still, it seems there is a requirement for 'core contrast' in verbal ellipsis on either the subject or auxiliary; contrast on the remnant object alone is not sufficient. Pseudogapping was characterised above in terms of its contrastive object remnant. In fact, (4) is also crucially reliant on a focused subject (a) or auxiliary (b); without either (c) is ungrammatical:

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<sup>5</sup>Winkler's characterisation of non-contrastive ellipsis might stem from an unduly restrictive reading of Rooth (1992b). Winkler & López (2000) and Winkler (2000) interpret Rooth (1992b) as claiming that VPE is all about contrastive focus on subjects. They counter with the claim that VPE is fundamentally about pitch accent on the negative/affirmative term, i.e. polarity focus. However, polarity focus (e.g. Crnic 2015) and focus on (Hardt & Romero 2004) VERUM (Romero & Han 2004) are perfectly well implementable in Rooth's system. Focus membership can be satisfied based on any type, including functions from propositions to propositions, like negation. Focus (membership) is not restricted to subjects, or things of type e.

- (4) a. John ate CHEESE, and MARY did eat CHOCOLATE.  
 b. ? John ate CHEESE, but he DIDN'T eat CHOCOLATE.  
 c. \* John ate CHEESE, and he did eat CHOCOLATE.

Gapping, likewise characterised by a contrastive object remnant, also crucially relies on double focus. In (5), only (a) with a focused subject is grammatical. Deletion of the tense node causes additional complications in (b), but it is nonetheless informative that (c) is ungrammatical in the absence of 'core contrast':<sup>6</sup>

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<sup>6</sup>There is the tantalising prospect of unifying this 'core contrast' requirement on (pseudo)gapping with MaxElide effects. The previous chapter concluded with the stipulation that the parallelism domain must be the node immediately above the landing site of movement out of an ellipsis site. VPE is licensed in (i) by contrast within this domain (a), but not above it (b):

(i) *Contrast and MaxElide effects*

- a. Beth knows what John will eat *t*, and  
 Carol knows [<sub>PD</sub> what BILL will eat *t* ].  
 b. \* Beth knows what John will eat *t*, and  
 CAROL knows [<sub>PD</sub> what he will eat *t* ], too.

Similarly, pseudogapping involves movement out of a VP ellipsis site (Jayaseelan 1990), and is licensed in (ii) by contrast within the clause (a), but not above it (b):

(ii) *Contrast and pseudogapping*

- a. Beth thinks John will eat cheese, and  
 Carol thinks [<sub>PD</sub> BILL will eat *t* CHOCOLATE ].  
 b. \* Beth thinks John will eat cheese, and  
 CAROL thinks [<sub>PD</sub> he will eat *t* CHOCOLATE ].



- (5) a. John ate CHEESE, and MARY ate CHOCOLATE.  
 b. \* John ate CHEESE, (and) <not> he <not> ate CHOCOLATE.  
 c. \* John ate CHEESE, and he ate CHOCOLATE.

Overall, it might be surprising from the perspective of ‘identity’ as crucial to ellipsis licensing that difference should play such a role. This surprise dissipates, however, considering that (1) is fundamentally a focus condition (Rooth 1992a; Tancredi 1992). In the theory of contrastive focus, there is no question that  $[[A]] \neq [[E]]$  is a crucial component (e.g. in overview Repp 2016: esp. ex. 9). In subjecting ellipsis to a focus-based identity condition, fully transposing all the pieces from the theory of focus should include strengthening focus membership with contrast. The resulting condition in (1) amounts to a requirement that there be contrastive focus above ellipsis sites whose antecedent does not denote a set.

## 2 Reciprocals and verb phrase ellipsis

This section considers mismatches in verb phrase ellipsis involving *each other*, exemplified in (6), (7) and (8). In each case, the reciprocal antecedent is intended to support a transitive interpretation of the ellipsis:

- (6) Irv and Martha want to dance with each other, but Martha can't  
 dance with Irv, since her husband is here. (Webber 1978: 165)
- (7) a. Interviewer: Would you like to see each other again?  
 b. Interviewee 1: I would < >. = Int 1 would like to see int 2 again  
 c. Interviewee 2: I would < >. = Int 2 would like to see int 1 again  
 (Elliott & Murphy 2019: ex. 1)<sup>7</sup>

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<sup>7</sup>0:54 at <https://youtu.be/XI5142ZwTQ0>

(8) % John<sub>1</sub> and Mary<sub>2</sub> criticised each other<sub>1+2</sub>, even though she<sub>2</sub> didn't want to  
criticise him<sub>1</sub>.

For some speakers, only (6) and (7) are acceptable. Common to both is the symmetry of the predicate. In (6), intransitive *dance-with* has a collective, symmetrical reading even before the addition of *each other*. In (7), *see each other* has a symmetrical idiomatic meaning: *go on a date with*.<sup>8</sup> Section 2.1 shows how ellipsis can be licensed for (6) and (7) in terms of the parallelism condition in (1) via symmetry. The reciprocal contribution of *each other* is effectively ignored, instead assimilating (6) and (7) to 'transitivity switching VPE' from chapter three.

However, such an approach will not suffice for speakers who accept (8) in addition to (6) and (7). Hardt (1993) and Elliott & Murphy (2019) offer analyses, discussed in sections 2.2 and 2.3, that make no recourse to symmetry. While motivated based on (6) and (7), respectively, their analyses instead make crucial use of *each other*, hence predicting (8) to be grammatical. Both follow Heim et al. (1991) in decomposing *each other* into a distributive operator *each* and a variable *other*. While *each* is discarded in resolving the ellipsis, *other* is fed into the ellipsis site to derive the mismatched reading. Elliott and Murphy's theory is appropriately more restrictive than Hardt's, in that *other* also takes a range argument that is read strictly, where Hardt appeals to discourse salience.

An alternative to the '*other*-ellipsis' analyses of Hardt (1993) and Elliott & Murphy (2019) would be to derive the switch reading of (8) from the entailment properties of *each other*. In (8), *John and Mary criticised each other* entails *John criticised Mary* and *Mary criticised John*, the latter plausibly providing the basis for ellipsis. Section 2.4 discusses this possibility, and the attendant prediction that the acceptability of ellipsis should weaken as

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<sup>8</sup>There may be other facilitating factors at play in (7): the indexical pronouns, and the fact that 'both halves' of (a) are 'used' in the interview format across (b) and (c).

the strength of the entailments weakens. Data in the vein of (9) involving weak reciprocal readings might be leveraged to distinguish between an entailment-based approach and *other*-ellipsis, but are unfortunately difficult to judge:

- (9) %((?)?) Every week in art class, John<sub>1</sub>, Mary<sub>2</sub>, Beth<sub>3</sub> and Chris<sub>4</sub>  
criticise each other<sub>1+2</sub>; though Beth<sub>2</sub> doesn't like to < >.

Therefore, while this section aims to map out some key questions regarding reciprocals in verb phrase ellipsis, firm answers await cleaner data and future research.

## 2.1 Symmetry and transitivity switching VPE

Transitivity switching VPE was introduced in chapter three, section 6. Transitivity switching poses a problem for syntactic identity, since an object DP comes and goes between the antecedent and elided VPs. Nevertheless, the parallelism condition in (1) correctly predicts the ellipses in (10) and (11) to be grammatical, based on the symmetry of *meet*:

- (10) John<sub>1</sub> wanted to meet Mary<sub>2</sub>, and (in the end) they<sub>1+2</sub> DID<sub>F</sub> meet.

$\varepsilon = \text{meet}$

A = John wanted PRO<sub>j</sub> to meet Mary

$\llbracket A \rrbracket = \text{want}'(\text{meet}'(j,m))(j) = \text{want}'(\text{meet}'(j+m))(j)$

E = VERUM<sub>F</sub> they meet                       $\llbracket E \rrbracket = \text{for-sure}'(\text{meet}'(j+m))$

F(E) = {it is for sure true that Mary and John met, it is possible that

Mary and John met, ..., Sue wanted/expected that Mary and John met,

John wanted that Mary and John met, ... }

$\llbracket A \rrbracket \in F(E)$  and  $\llbracket A \rrbracket \neq \llbracket E \rrbracket$

(11) John<sub>1</sub> and Mary<sub>2</sub> met, because she WANTED<sub>F</sub> to ~~meet~~ ~~him~~<sub>T</sub>.

$\varepsilon = \text{meet him}_1$

A = John and Mary met                       $\llbracket A \rrbracket = \text{meet}'(j+m) = \text{meet}'(m,j)$

E = Mary WANT<sub>F</sub> to meet John               $\llbracket E \rrbracket = \text{want}'(\text{meet}'(m,j))(m)$

F(E) = { Mary wants Mary meet John, Mary expects Mary meet John,

Mary hopes Mary meet John, ... Mary meet John, ... }

$\llbracket A \rrbracket \in F(E)$  and  $\llbracket A \rrbracket \neq \llbracket E \rrbracket$

Of interest here is the switch from intransitive to transitive in (11). Adding *(with) each other* to (11) is entirely innocuous in (12):

(12) John<sub>1</sub> and Mary<sub>2</sub> met (with) each other, because she WANTED<sub>F</sub> to ~~meet~~ ~~(with)~~ ~~him~~<sub>T</sub>.

Ellipsis can be licensed for (12) in the same way as (11). The antecedent *John and Mary met ((with) each other)* amounts to the same thing, regardless of the brackets. The same considerations apply to (6), based on the symmetry of *dance-with*; and to (7), as long as *see each other* is idiomatically symmetrical, amounting to *go on a date with*.<sup>9</sup> Thus ellipsis mismatches involving *each other* in combination with a symmetrical predicate (6, 12), or as part of one (7), can be assimilated to transitivity switching VPE.<sup>10</sup>

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<sup>9</sup>In fact, even without *each other*, *see* in the sense of *date* is idiomatically symmetrical, hence compatible with transitivity (i) and participant (ii) switching VPE:

(i) John is seeing Mary at the moment, but I doubt they will be < > for much longer.

(ii) John wants to keep seeing Mary, but she doesn't want to < >.

<sup>10</sup>There is more to say about the supposed innocence of *each other* in concert with symmetrical predicates. The text claims that *each other* plays no role in licensing the mismatched ellipsis. In (6), *each other* at least has a role to play in the sentence, if not in licensing the ellipsis. Adding *each other* disambiguates to a collective rather than

However, some speakers accept mismatches involving *each other* in the object position of non-symmetrical predicates, as with *criticise* in (8). The next two subsections discuss analyses in terms of ‘*other-ellipsis*’, which, while motivated based on (6) and (7), also predict (8) to be good.

## 2.2 Hardt (1993): *other-ellipsis*, repair and salience

Hardt (1993: 23ff., 55f.) advances an account of (6), repeated here, as *other-ellipsis*, with attendant assumptions about repair and salience:<sup>11, 12</sup>

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distributive interpretation of *Irv and Martha are dancing*. With *each other*, Irv and Martha are unambiguously dance partners; without it, they could each be dancing on their own.

With an obligatorily collective predicate like *meet*, however, *each other* is robbed of even a disambiguating role. Adding *each other* to *John and Mary met* seems to be entirely semantically inert. Moreover, it seems to be entirely pragmatically inert. Usually, adding superfluous words generates implicatures by flouting Grice’s maxim of Manner, but no implicatures arise from *John and Mary met each other*.

<sup>11</sup>Hardt (1993: 25) also presents (i):

- (i) Martha and Irv had planned to nominate each other, but Martha couldn’t ~~nominate Irv~~, because of her political obligations.

His concern is not the symmetry of *dance (with)*, but the fact that *dance* can be intransitive. An intransitive ellipsis site would be impossible with *nominate* in (i).

<sup>12</sup>See also Hardt (2004, 2007) on (i) from Webber (1978: 128, 165)), which was discussed in chapter three:

- (i) Irv and Martha want to dance together, but Martha can’t ~~dance with Irv~~, since her husband is here.

- (6) Irv and Martha want to dance with each other, but Martha can't  
~~dance with Irv~~, since her husband is here.

Following the analysis of reciprocals in Heim et al. (1991), Hardt assumes that *each other* makes two separate semantic contributions. First, *each* is a distributive operator (DIST) that applies to VP. Second, *other* is a variable that is bound outside the VP. Hence the structure of the antecedent in (6) is as in (13):

- (13) Irv and Martha [<sub>VP</sub> DIST [<sub>VP</sub>  $\lambda x$ .want(x,dance(x,y)) ] ]

Ellipsis is resolved as in (14). The distributive contribution of *each* is discarded,<sup>13</sup> whereas the variable contributed by *other* is retained. In the ellipsis site, this variable is free, and its referent is determined by the context. For (6), it is resolved the salient individual, *Irv*:

- (14) Martha [<sub>VP</sub>  $\lambda x$ .(dance(x,y)) ]

Two problems arise from Hardt's assumptions regarding repair and salience. First, Hardt claims that the construction of the ellipsis site in (14) has to be triggered. In (6), the antecedent VP including *each* cannot be plugged directly into the ellipsis site, since ungrammaticality would result from *each other* lacking a plural binder, as in (15), :

- (15) \* Martha can't dance with each other.

This semantically unacceptable agreement violation triggers inferencing from Irv and Martha wanting to dance together to Martha wanting to dance with Irv. In arguing that repair plays a role in (6), Hardt looks to (16). Since (16) does not contain any agreement violation to trigger inferencing, none is required or allowed. The ellipsis site can only be resolved as *dance with each other*, not *dance with Irv*:

- (16) Irv and Martha wanted to dance with each other, but Tom and Susan didn't  
 want to ~~dance with each other~~ / \*~~dance with Irv~~.

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<sup>13</sup>As is *want*.

However, at least for speakers who accept *each other* mismatches only with symmetrical predicates, an analysis in terms of (1) accounts for (6) and (16) without invoking repair. Ellipsis is licensed for (6) with *each other* along the same lines as (11), where *each other* is not present to trigger repair. That is, transitivity switching is possible in the absence of an unacceptable agreement trigger like *each other*. This point is obscured by the plurality-seeking *meet* in (11), where the ellipsis site cannot be resolved by the ungrammatical \**Martha met*. But a transitivity switch reading remains available in (17); this despite the grammaticality of *Martha danced*, and in the absence of anything else to trigger inferencing:

- (17) Irv and Martha want to dance, but Martha can't dance ~~with Irv~~,  
since her husband is here.

Further, just as (6) and (17) are both ruled in, the unavailable switch interpretation of (16) is ruled out as a focus membership failure. Informally, Irv and Martha dancing together is not a member of alternatives to some other people wanting to dance with just Irv. Thus an analysis in terms of (1) improves on Hardt (1993), at least for speakers who accept (6) and (7) but not (8), in not having to invoke repair.

The second problem with Hardt's proposal is the reliance on salience to resolve the reference of *other*. The prediction is that, given sufficient salience, the variable contributed by *other* could be resolved to someone other than Irv. This does not appear to be the case in (18), with or without *with each other*. The *other* variable cannot be resolved to *Bill*, despite his salience in the discourse as an attitude holder. The failed attempt to locate the misfortune with *Bill* brings this out to the fullest:

- (18) Bill really likes Mary, but accepts that she and John want to dance (with each other). Unfortunately (??for Bill), Mary can't dance ~~with John~~/\**Bill*, since her husband is here.

The account in the previous subsection in terms of (1), on the other hand, correctly excludes the possibility of reading *Bill* into the ellipsis site in (18). Focus membership only holds via

symmetry if the switching participants remain constant across A and E.

In sum, the parallelism condition in (1) accurately captures transitivity switching VPE with symmetrical predicates with and without *each other*, without Hardt's recourse to a notion of repair. The next subsection introduces a more restrictive version of Hardt's analysis, which fixes the salience problem by providing *other* with a range argument that is read strictly.

### 2.3 Elliott & Murphy (2019): *other*-ellipsis with a strict range

Independently of Hardt (1993), Elliott & Murphy (2019) arrive at a proposal in terms of *other*-ellipsis. Elliott & Murphy (2019) consider the naturally attested dialogue in (7), repeated here:

- (7) a. Interviewer: Would you like to see each other again?  
b. Interviewee 1: I would < >. = Int 1 would like to see int 2 again  
c. Interviewee 2: I would < >. = Int 2 would like to see int 1 again

Like Hardt, Elliott & Murphy (2019) follow Heim et al. (1991) in decomposing *each other* into a distributive operator *each* and a variable *other*. However, unlike Hardt, Elliott & Murphy (2019) provide *other* with a range argument that is read strictly, thereby fixing the overgeneration problem incurred by Hardt's appeal to salience. For Elliott & Murphy (2019), the distributor *each* universally quantifies over the plural antecedent, while the reciprocator *other* takes two arguments: a contrast argument  $x$ , bound by the distributor; and a range argument  $Z$ , coreferential with the plural antecedent. The reciprocator universally quantifies over members of the range, distinct from the contrast. The LF of the dialogue in (7) is then as in (19). The ellipses take the scope of the distributor as antecedent, with the contrast argument of the reciprocator re-bound by the subject. The interpretation of the elliptical sentence can be paraphrased as "I would like to see each  $z \in Z$ , such that  $z \neq me$ ":



- (19) a. Interviewer: [ each [ you ]<sup>Z</sup> ]  $\lambda x$  [ other<sub>x,Z</sub> ]  $\lambda y$  [ t<sub>x</sub> like to see t<sub>y</sub> ]  
 =  $\forall x \in \{ \text{int.1, int.2} \}, \forall y \in \{ \text{int.1, int.2} \} [ y \neq x \rightarrow x \text{ like to see } y ]$
- b. Interviewee 1: I  $\lambda x$  [ other<sub>x,Z</sub> ]  $\lambda y$  [ t<sub>x</sub> like to see t<sub>y</sub> ]  
 =  $\forall y \in \{ \text{int.1, int.2} \} [ y \neq \text{int.1} \rightarrow \text{int.1 like to see } y ]$   
 = int.1 like to see int.2
- c. Interviewee 2: I  $\lambda x$  [ other<sub>x,Z</sub> ]  $\lambda y$  [ t<sub>x</sub> like to see t<sub>y</sub> ]  
 =  $\forall y \in \{ \text{int.1, int.2} \} [ y \neq \text{int.2} \rightarrow \text{int.2 like to see } y ]$   
 = int.2 like to see int.1

In other words, the contrast argument is read sloppily, while the range argument is read strictly. The strict reading of the range argument is the crucial difference from Hardt. Where Hardt appealed to salience to supply the referent for the free variable contributed by *other*, here consistency of participants across antecedent and ellipsis is enforced.<sup>14</sup>

Thus Elliott & Murphy (2019) resolve the crucial empirical problem with Hardt (1993). Quite apart from the idiomatic symmetry of *see each other* in their particular example, the

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<sup>14</sup>Additionally, the contrast argument  $x$  needs to be restricted to members of the range argument  $Z$ . Otherwise, a fresh subject could be fed in above the ellipsis site, yielding the unavailable reading in (i) based on the calculations in (ii):

- (i) a. A: Would John and Mary like to see each other again?  
 b. B: \*Chris would < >. < > = like to see John and Mary again
- (ii) a. [ each [ John and Mary ]<sup>Z</sup> ]  $\lambda x$  [ other<sub>x,Z</sub> ]  $\lambda y$  [ t<sub>x</sub> like to see t<sub>y</sub> ]  
 =  $\forall x \in \{ j, m \}, \forall y \in \{ j, m \} [ y \neq x \rightarrow x \text{ like to see } y ]$
- b. Chris  $\lambda x$  [ other<sub>x,Z</sub> ]  $\lambda y$  [ t<sub>x</sub> like to see t<sub>y</sub> ]  
 =  $\forall y \in \{ j, m \} [ y \neq c \rightarrow c \text{ like to see } y ]$   
 = c like to see j  $\wedge$  c like to see m

analysis also predicts that ellipsis will be good in (8), repeated here:

- (8) % John<sub>1</sub> and Mary<sub>2</sub> criticised each other<sub>1+2</sub>, even though she<sub>2</sub> didn't want to  
criticise him<sub>1</sub>.

The final subsection sketches an entailment-based alternative to the *other*-ellipsis analyses of Hardt (1993) and Elliott & Murphy (2019), and considers the sort of data that might decide between them.

## 2.4 Entailment, weak and strong reciprocity, and ellipsis

An alternative to *other*-ellipsis would be to license ellipsis in (8) based on what the antecedent entails. The parallelism condition in (1) is not satisfied directly, since the antecedent *John and Mary criticised each other* is not a member of the focus alternatives to Mary not wanting to criticise John. However, the antecedent entails *Mary criticised John*, and this entailment is an alternative to F(E). Thus focus membership can be satisfied 'indirectly' (Fox 2000) as in (20), along similar lines to transitivity switching with a partially symmetrical predicate like *kiss* in chapter three:

- (20) % John<sub>1</sub> and Mary<sub>2</sub> criticised each other<sub>1+2</sub>, even though she<sub>2</sub> didn't want to  
criticise him<sub>1</sub>.  
 $\varepsilon = \text{criticise him}_1$   
 $A = \text{John and Mary criticise each other}$   
 $\llbracket A \rrbracket \Rightarrow A_{\Rightarrow} = \text{criticise}'(j)(m)$   
 $E = \text{Mary WANT}_F \text{PRO}_m \text{ kiss John} \quad \llbracket E \rrbracket = \text{want}(\text{criticise}'(j)(m))(m)$   
 $F(E) = \{ \text{Mary want Mary criticise John, Mary expect Mary criticise John, ...}$   
 $\text{Mary criticise John, ... } \}$   
 $A_{\Rightarrow} \in F(E) \text{ and } A_{\Rightarrow} \neq \llbracket E \rrbracket$

Deciding between *other*-ellipsis and an entailment-based alternative might be possible

on empirical grounds. The entailment relied upon in the previous paragraph is only valid by virtue of the subject being a pair — John and Mary. In the general case, where the plural subject has more than two members, the availability of a weak reading for the reciprocal will block entailment. In (21), for example, (a) cannot entail that any given tray is stacked on top of another (Fiengo & Lasnik 1973: 455). For all speakers, (a) cannot antecede the ellipsis in (b):

- (21) a. The trays were stacked on top of each other.  
b. \* But that doesn't mean any particular tray is < >.

An entailment-based theory predicts that the acceptability of ellipsis should weaken with the strength of the entailments. The deciding data lie in the vein of (9), repeated here:

- (9) %((?)?) Every week in art class, John<sub>1</sub>, Mary<sub>2</sub>, Beth<sub>3</sub> and Chris<sub>4</sub>  
criticise each other<sub>1+2</sub>; though Beth<sub>2</sub> doesn't like to < >.

The *other*-ellipsis analysis of Elliott & Murphy (2019), with the strict range argument, predicts that (9) is good with the elliptical clause meaning that Beth doesn't like to criticise John, Mary and Chris.<sup>15</sup> The entailment-based analysis, on the other hand, predicts that ellipsis is bad in (9), since the antecedent fails to guarantee that Beth doesn't like criticising any particular one of the other three art students.

To the extent it is viable, the entailment-based approach might offer an insight into the interspeaker variation on (8). Some speakers are willing to use the entailments of *each other*

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<sup>15</sup>The *other*-ellipsis analysis of Hardt (1993) predicts greater flexibility. The variable contributed by *other* could be resolved to a salient sub-group of *John, Mary and Chris*, rather than all three. However, this deference to salience is so flexible as to allow the variable to be resolved to salient people beyond or besides *John, Mary and Chris*, which seems undesirable.

in the particular case of a pair subject to license ellipsis. Other speakers reject (8) based on the general fallibility of entailments with *each other*.

Given the unknown status of (9), this section hopes to have mapped out some key questions regarding reciprocals in verb phrase ellipsis, with firm answers awaiting cleaner data and future research.

### 3 Contrast in noun phrase ellipsis

This section shows that noun phrase ellipsis (NPE), just as much as VPE, is subject to a contrast requirement.

A first hint that ellipsis of nouns requires contrast comes from (22), discussed in the context of tautologies in chapter two. Whereas (a) is trivial but perfectly grammatical, (b) is ungrammatical, since there is no properly contrasting antecedent for ellipsis:<sup>16</sup>

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<sup>16</sup>We might compare (22) with examples involving negation, like the google-able book titles in (i):

- (i) a. The Tiger That Isn't
- b. The World That Isn't

It is not clear how these titles are intended. If with ellipsis, the licensing calculations would need to take A to be the subject DP and E to be a negated nominal predicate with focused constituent negation. However, it may be that the 'exists' version of *BE* is intended, i.e. *The Tiger/World that doesn't exist*. Or again, (i) may involve deliberately questionable uses of ellipsis that are designed to be eye-catching — see McCloskey (2018) for discussion. The article title in (ii) seems to fit this characterisation, with ellipsis of *heroes* intended:

- (ii) School Shootings and the Heroes Who Shouldn't Be

www.newyorker.com, 10 May 2019

- (22) a. Boys will be boys.  
b. \*Boys will be ~~boys~~.

However, (22) involves ellipsis of a noun in predicate position, which plausibly counts as a case of VPE, hence already subject to the condition in (1). The rest of this section investigates whether ellipsis of noun phrase complements of D or Num requires contrast.

An argument that NPE requires contrast can be made by stepping through the pairs in (23), (24) and (25). In (23), there are two dimensions of contrast: one between the subjects *John* and *Mary*, and another between the number of books, *five* vs. *three*. From the baseline in (a), ellipsis is perfectly possible in (b):

- (23) a. John bought five books and Mary bought three books.  
b. John bought five books and Mary bought three ~~books~~.

The contrasting numbers *five* vs. *three* are crucial to licensing NPE in (23b). Consider what happens without this contrast in (24). Contrast between the subjects *John* and *Mary* is retained, making for an acceptable baseline in (a); but contrasting subjects alone do not support ellipsis in (b):

- (24) a. John bought five books and Mary bought five books.  
b. \*John bought five books and Mary bought five ~~books~~.

In order to ‘use’ contrasting subjects to license ellipsis across conjuncts, *too* (or similar, e.g. *also*, *as well*) is required. In (25), the (a) baseline is again acceptable, and this time the elliptical (b) is, too:

- (25) a. John bought five books and Mary bought five books, too.  
b. John bought five books and Mary bought five ~~books~~, too.

The necessity of *too* to making contrasting subjects available for use in ellipsis licensing is independent of NPE, as the (attempt at) VPE in (26) shows:

- (26) a. John left, and Mary left (, too).  
 b. John left, and Mary did ~~leave~~ \*(, too).

In sum, the fact that *too* is not necessary in (23) shows that the contrast between *three* vs. *five* is crucial to licensing NPE in (23b). Without it, ellipsis falls to contrast failure in (24). NPE can be licensed at the clause level by contrasting subjects; but in coordination that contrast is only ‘activated’ by *too* in (25b).

From a competition-based perspective, one might object that ellipsis is bad in (24b) not due to contrast failure, but for losing to other, less wordy candidates. As discussed in the previous chapter, more would need to be said as to why the fully pronounced (24a) does not suffer from competition in the same way as the elliptical (24b). Even granting this, of the two candidates that present themselves, neither can be regarded as a true competitor to (24b).

The first potential competitor involves VPE, as in (27):

- (27) a. John bought five books and Mary bought five books, too.  
 b. John bought five books and Mary did ~~buy five books~~, too.

One might argue that the larger ellipsis in (27b) outcompetes smaller NPE in (24b). However, (27b) includes *too*, so is not a direct competitor to (24b). In fact, VPE here, just as much as NPE in (25), requires *too*. The general point was made with (26), and is applied to (27) in (28):

- (28) a. John bought five books and Mary bought five books.  
 b. \* John bought five books and Mary did ~~buy five books~~.

Since (24b) lacks a true, grammatical VPE competitor without *too*, competition from larger ellipsis cannot be what rules out NPE in (24b).

A second potential competitor to (24b) is (29), with conjoined subjects rather than clausal conjunction:

- (29) John and Mary (each) bought five books.

This second objection can be laid to rest with (30). Ellipsis remains bad inside an adverbial *before*-clause, just as much as with conjunction in (24b). As (31) shows, a conjoined subject paraphrase like (29) is not possible for a *before*-clause:

- (30) a. John bought five books before Mary bought five books.  
b. \* John bought five books before Mary bought five books.
- (31) \* John before Mary bought five books.

Hence competition from a conjoined subject paraphrase is not a generalisable explanation for the failure of ellipsis in (24b) and (30b). The argument above was run on conjoined clauses so as to reveal the ameliorating effect of *too* in (25). As (32) shows, *too* is incompatible with *before*-clauses:

- (32) a. ?? John bought five books before Mary bought five books, too.  
b. \* John bought five books before Mary bought five books, too.

In conclusion, NPE is subject to a contrast requirement just as much as VPE. Stepping through the licensing calculations for the elliptical (b) examples in (23), (24) and (25) makes the point explicitly. For (23), ellipsis is licensed at the DP level, as in (33). Focus on *three* evokes the set of all numbers of books, of which *five books* is a member; while the difference between *three* and *five* satisfies contrast. For (24), on the other hand, ellipsis fails at the DP level, as in (34), since the contrast requirement is not met. The subject contrast at the clause level is only accessible with the addition of *too* in (25), with NPE licensed as in (35):

- (33) John bought five books and Mary bought three<sub>F</sub> books.  $\varepsilon = \text{books}$   
 $E = \text{three}_F \text{ books}$   $A = \text{five books}$   
 $\llbracket E \rrbracket = \lambda X. \text{books}'(X) \wedge |X| = 3$   $\llbracket A \rrbracket = \lambda X. \text{books}'(X) \wedge |X| = 5$   
 $F(E) = \{ \lambda X. \text{books}'(X) \wedge |X| = n \mid n \in \mathbb{N} \}$   $\llbracket A \rrbracket \in F(E), \text{ and } \llbracket A \rrbracket \neq \llbracket E \rrbracket$
- (34) \* John bought five books and Mary bought five<sub>F</sub> books.  $\varepsilon = \text{books}$   
 $E = \text{five}_F \text{ books}$   $A = \text{five books}$   
 $\llbracket E \rrbracket = \lambda X. \text{books}'(X) \wedge |X| = 5$   $\llbracket A \rrbracket = \lambda X. \text{books}'(X) \wedge |X| = 5$   
 $F(E) = \{ \lambda X. \text{books}'(X) \wedge |X| = n \mid n \in \mathbb{N} \}$   $\llbracket A \rrbracket \in F(E), \text{ but } \llbracket A \rrbracket = \llbracket E \rrbracket$
- (35) John bought five books and Mary<sub>F</sub> bought five books, too.  $\varepsilon = \text{books}$   
 $E = \text{Mary}_F \text{ bought five books}$   
 $\llbracket E \rrbracket = \exists X(\text{buy}'(X)(m) \wedge \text{books}'(X) \wedge |X| = 5)$   
 $F(E) = \{ \exists X(\text{buy}'(X)(y) \wedge \text{books}'(X) \wedge |X| = 5) \mid y \in D_e \}$   
 $A = \text{John bought five books}$   
 $\llbracket A \rrbracket = \exists X(\text{buy}'(X)(j) \wedge \text{books}'(X) \wedge |X| = 5)$   
 $\llbracket A \rrbracket \in F(E), \text{ and } \llbracket A \rrbracket \neq \llbracket E \rrbracket$

## 4 Tense, times and VPE

This section shows that ellipsis licensing is not sensitive to tense. Unlike intensionality, tense does not count for focus membership and contrast in ellipsis licensing. Explicit reference to times, however, does support ellipsis.

In chapter two, we saw that the parallelism condition in (1) is sensitive to intensionality. Recall, for example, the case of tautologous free relatives in (36). Ellipsis fails contrast in (b), but is grammatical with the addition of *Mary believes* in (d):



- (36) a. John eats what he eats.  
 b. \* John eats what he does eat.  
 c. Mary believes that John eats what he eats.  
 d. Mary believes that John eats what he does eat.

In short, John definitely eating something is one of the focus alternatives to Mary believing as much, with the difference in meaning also satisfying contrast. More fully, ellipsis is licensed for (36d) as in (37) via focus on (Hardt & Romero 2004) VERUM (Romero & Han 2004):

- (37) Mary believes that John eats what he DOES eat.

[what<sub>4</sub> VERUM he<sub>1</sub> eat<sub>t<sub>4</sub></sub>] 3 Mary believes that John<sub>1</sub> eats t<sub>3</sub>

$\epsilon = \text{eat } t_4$

A = 3 Mary believes that John eats t<sub>3</sub>

$\llbracket A \rrbracket = \lambda x. \lambda w. \text{believe}'_w(\lambda w'. \text{eat}'_{w'}(x)(j))(m)$

E = 4 VERUM<sub>F</sub> John eat t<sub>4</sub>

$\llbracket E \rrbracket = \lambda x. \lambda w. \text{for-sure}'_w(\lambda w'. \text{eat}'_{w'}(x)(j))$

F(E) = {  $\lambda x. \lambda w. \text{it is for sure true in } w \text{ that John eats } x, \lambda x. \lambda w. \text{it is possible in } w$   
 that John eats  $x, \dots, \lambda x. \lambda w. \text{Sue expects in } w \text{ that John eats } x,$

$\lambda x. \lambda w. \text{Mary believes in } w \text{ that John eats } x, \dots$  }

$\llbracket A \rrbracket \in F(E) \text{ and } \llbracket A \rrbracket \neq \llbracket E \rrbracket$

Unlike intensionality, differences in tense fail to satisfy focus membership and contrast.

For example, alternating between future and past fails to license ellipsis in (38):

- (38) a. John will eat what he ate.  
 b. \* John will eat what he did eat.

The ungrammaticality of (38b) suggests that ellipsis licensing calculations along the lines of (39), attempting to make use of tense, are excluded:

- (39)  $\lambda x$  E = 4 PAST<sub>F</sub> John eat t<sub>4</sub>                      A = 3 FUT John eat t<sub>3</sub>  
 $\llbracket E \rrbracket = \lambda x. \text{PAST}(\text{eat}'(x)(j))$                        $\llbracket A \rrbracket = \lambda x. \text{FUT}(\text{eat}'(x)(j))$   
 $F(E) = \{ \lambda x. \text{T}(\text{eat}'(x)(j)) \mid \text{T} \in D_{\text{tenses}} \}$      $\llbracket A \rrbracket \in F(E)$ , and  $\llbracket A \rrbracket \neq \llbracket E \rrbracket$

The time dimension is not entirely excluded from participating in ellipsis licensing, however. Adding temporal adverbs that explicitly refer to times supports ellipsis in (40):

- (40) a. John will eat tomorrow what he ate yesterday.  
b. John will eat tomorrow what he did eat yesterday.

The grammaticality of (40b) suggests that ellipsis licensing calculations along the lines of (41), making use of contrasting times, are allowed:

- (41) E = 4 John ate t<sub>4</sub> yesterday<sub>F</sub>                      A = 3 John eat t<sub>3</sub> tomorrow  
 $\llbracket E \rrbracket = \lambda x. \text{eat}'(x)(j) \text{ at yesterday}$                        $\llbracket A \rrbracket = \lambda x. \text{eat}'(x)(j) \text{ at tomorrow}$   
 $F(E) = \{ \lambda x. \text{eat}'(x)(j) \text{ at } t \mid t \in D_{\text{times}} \}$      $\llbracket A \rrbracket \in F(E)$ , and  $\llbracket A \rrbracket \neq \llbracket E \rrbracket$

We can confirm that tense plays no role in (40) with (42), where ellipsis is licensed based on contrasting times in the same tense:

- (42) a. John ate yesterday what he ate the day before.  
b. John ate yesterday what he did eat the day before.

Further, of the two temporal adverbs in (40), only the second is necessary. Ellipsis is good in (43), with just one temporal adverb as part of E; but not in (44), with just one temporal adverb as part of A:

- (43) a. John will eat what he ate yesterday.  
b. John will eat what he did eat yesterday.  
(44) a. (?) John will eat tomorrow what he ate.  
b. \* John will eat tomorrow what he did eat.

Accounting for (43b) means allowing focus and contrast to be assessed against an implicit or accommodated time where none is spoken in A, along lines familiar from the literature on sprouting (Chung et al. 1995).

In sum, tense doesn't count for parallelism, whereas times do. This generalisation is robust in the face of attempts to collapse one into the other, in both directions. In (45), the PPs do no more than paraphrase the meaning of future and past tense; yet, as contrasting time adverbials, they successfully support ellipsis:

- (45) a. John will eat in the future what he ate in the past.  
b. John will eat in the future what he did eat in the past.

In the opposite direction in (46), L's utterance establishes particular times for the tenses in B's utterance to refer to. But, as tenses, they fail to support ellipsis in B':

- (46) L: I hope the witness will say in court this afternoon what he said to us yesterday.  
B: Don't worry, he will say what he said.  
B': \* Don't worry, he will say what he did say.

Further examples involving successful use of time contrasts are collected below. Beyond the free relatives used in this section, parallel points can be made with conditionals (47), *because*-clauses (48), or plain coordination (49). And beyond temporal adverbials (a,b), time particles (c) are just as good at helping ellipsis (e.g. *again, always, still*); as, somewhat marginally, is habitual *used to* (48d):<sup>17</sup>

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<sup>17</sup>It may prove insightful to compare time particles with the role of *too* in 'activating' contrasting subjects for use in ellipsis licensing in (25) and (26), above. If temporal particles do not provide contrast directly, it may be that they are activating contrast elsewhere. That said, different tenses are not required, at least with *always* in (i):

- (i) John is late, because he \*(always) is late.

- (47) a. If John is wrong (today), then he was ~~wrong~~ \*(yesterday), (too).  
 b. If John was late (yesterday), then he will be late \*(tomorrow).  
 c. If John was late, then he will be late \*(again (tomorrow)).
- (48) a. John will bring wine (later), because he did ~~bring wine~~ \*(last time).  
 b. John reads a lot, because he did ~~read a lot~~ \*(as a child).  
 c. John will be late, because he \*(always) is late.  
 d. ? John reads a lot, because he used to ~~read a lot~~.
- (49) a. John read on Tuesday, and he did ~~read~~ \*(on Wednesday).  
 b. John read a lot as a teenager, and he does ~~read a lot~~ \*(now).  
 c. John read a lot as a teenager, and he \*(still) does ~~read a lot~~.

## 5 Negation and ellipsis

This section studies negation in ellipsis, broadening the empirical scope to compare VPE with clausal ellipsis. The section begins by reviewing the results of previous chapters, which established that negation counts for contrast, with an important exception in ellipsis with symmetrical predicates. This review sets the scene for observing a difference between VPE with *why . . . didn't* and clausal ellipsis with *why NOT*. Whereas *didn't* introduces a new negation, satisfying VPE's requirement for contrast, *why NOT* necessarily relies on a negative antecedent, reflecting sluicing's requirement for sameness. Further investigation of *why NOT* sluicing shows that even a negative antecedent is not sufficient, with *why NOT* best analysed as a single 'fused' item.

In review, this dissertation has shown that the parallelism condition in (1) is sensitive to sentential negation. Chapter two on triviality considered examples like the elliptical contradictory conjunction in (50):

(50) John<sub>1</sub> is wrong and he<sub>1</sub> isn't<sub>F</sub> ~~wrong~~.

Based on clause (i) of (1), ellipsis is licensed in (50) with focus on the negation. Polarity focus satisfies focus membership, while the opposition between positive and negative clauses satisfies contrast. For (50),  $wrong'(j) = \llbracket A \rrbracket \in F(E) = \{ wrong'(j), not-wrong'(j) \}$ , and  $wrong'(j) \neq not-wrong'(j)$ . Trivial sentences like (50) thus isolate negation as being able to fulfil focus membership and contrast on its own.

Chapter three on symmetry, meanwhile, argued that negation licenses ellipsis in examples like (51), with (52) a special exception:

(51) Bill<sub>3</sub> wanted both for John<sub>1</sub> to meet Mary<sub>2</sub>, and for her<sub>2</sub> \*(NOT<sub>F</sub>) to ~~meet him<sub>T</sub>~~.

(52) \* John<sub>1</sub> danced with Mary<sub>2</sub>, but she<sub>2</sub> didn't ~~dance with him<sub>T</sub>~~.

While we can say contradictory things, (52) is ungrammatical for contradicting the route to its own construction. Ellipsis licensing presupposes the equality, by symmetry, of  $dance'(j,m)$  with  $dance'(m,j)$ ; but the sentence asserts the opposite.<sup>18</sup>

Overall, negation is able to fulfil the focus membership and contrast requirements of clause (i) of (1) for VPE. In similar circumstances, however, negation has a wrecking effect on clausal ellipsis. Consider (53), which begins with plain *why*-sluicing in (a). With *why NOT*, the sentence is downright ungrammatical in (b). The meaning that (b) looks to be getting at is expressible with VPE using *didn't* in (c), which is contradictory but grammatical:

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<sup>18</sup>Section 6 will analyse the voice mismatch pair in (i) along similar lines. Ellipsis is licensed in (a) based on the assumption that Gorbachev is the person under obligation to release the information. This assumption is contradicted by the assertion in (b):

- (i) a. ? This information should have been released, but Gorbachev didn't.  
b. \* This information was released, but Gorbachev didn't.

- (53) a. John left, but I don't know why ~~he left~~.  
 b. \* John left, but I don't know why NOT.  
 c. # John left, but I don't know why he didn't leave.

The paradigm in (54) shows similar, but avoids contradiction by splitting antecedent and ellipsis across two speakers. Where the infelicity of VPE (c) disappears from (53) to (54), the ungrammaticality of clausal ellipsis (b) remains:

- (54) Context: Anthony is a very fair critic. He always gives both pros and cons when he reviews a film.  
 A : Anthony really enjoyed this film because of George Clooney's performance.  
 B : \* Ok. And why NOT?  
 B' : Ok. And why didn't he ~~enjoy the film~~?

This difference with respect to negation brings out a broader difference between VPE and clausal ellipsis, which has been lurking throughout this dissertation. VPE generally draws on clause (i) of (1), and so contrast is required; whereas clausal ellipsis generally draws on clause (ii), the subethood condition, which is fundamentally about similarity, if not sameness.<sup>19</sup> With respect to negation, negation creates contrast, which VPE wants, but clausal ellipsis doesn't. If the sluicing (b) examples in (53) and (54) could be subjected to clause (i) of (1), then ellipsis should be licensed just as well as in the VPE (c) examples.

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<sup>19</sup>The exceptions to these two generalisations are ripe for further work. We saw in chapter two that VPE uses clause (ii) in answers to questions and in utterances of agreement across speakers, where there is no contrast requirement. The exceptions for clausal ellipsis using clause (i) could play at least a descriptive if not explanatory role in the differences among clausal ellipsis based on contrastivity — for example, with respect to island amelioration (Merchant 2004; Griffiths & Lipták 2014).

The rest of this section investigates clausal ellipsis with *why NOT*. We will see that *why NOT* requires a negative antecedent and behaves as a single ‘fused’ item. To begin, compare the badness of *why NOT* in (53) and (54) with (55). The negative antecedent allows *why*-sluicing of a negative TP in (a). The same configuration also allows pronunciation of *NOT* in (b):

- (55) a. John didn’t leave, but I don’t know why ~~he didn’t~~ leave.  
b. John didn’t leave, but I don’t know why NOT.

Importantly, (b) seems to be completely synonymous with (a). That is, (b) is not interpreted with double negation, showing that the *NOT* of *why NOT* is not really ‘new’. Rather, a negative antecedent licenses a negative sluice in (a), with whose negativity *why NOT* is concordant in (b).

Further investigation reveals that *why NOT* behaves as a single fused item. Across the examples in (57)-(59), we will see that *why*’s reason and *NOT*’s negation must come from the same clause. That is, the evidence will be against an analysis along the lines of (56), where *why* moves from one clause, while *NOT* separately establishes a long-distance dependency with negation in a different clause:<sup>20</sup>

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<sup>20</sup>The ‘opposite’ of (56), with *why* moving from the lower clause and *NOT* associating with a higher clause, is independently ruled out by negative islandhood (Ross 1984). Notice that (55) is already unambiguous as to the relative scope of *why* and negation. The sluice can only be asking for the reason why John didn’t leave; it cannot be asking after what was not the reason for John leaving. That is, of the two readings of the base sentence in (i), only (a) survives questioning with *why* in (55):

- (i) John didn’t leave because he was hungry.  
a. reason >> not: He was holding out for dessert.  
b. not >> reason: Rather, he left because he was tired.

(56) ✗ [ Why NOT ... *t* ... [CP ... NEG ... ] ]

To begin, all is as expected in (57). The matrix clause is both negated and questioned by *why*. Hence B and B' are both good, and ask the same thing:

(57) A: John didn't tell Mary that he was coming.

B: Why?      B': Why NOT?

B = B' = Why didn't John tell Mary that he was coming?

✓ *why* ~ *tell*: What reason did John have for not telling Mary that he was coming?

In (58), however, the embedded clause of the antecedent is negated. The background context brings out the relevant reading on which the ellipsis site includes the matrix *tell*-clause. The B response, *Why?*, is ambiguous in the same way as the unelided version of the sentence. It can be questioning the reason for John's telling or the reason for his not coming. The B' response, *Why NOT?*, however, does not have the same range of interpretations as the unelided version of the sentence. Rather, it is unambiguous. B' can only be questioning the reason for John's not coming; it cannot be questioning the reason for John's telling:

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This negative island behaviour is common to adjunct wh-phrases. Compare (ii) with *how*:

(ii) \* How didn't you behave?

With a contextually limited range, (ii) and (55) can be good on the *not* >> *reason* reading. For example, if there are just two contextually salient ways you could have behaved; or if John always gives one of two reasons for leaving a party: that he is too tired, or that he is too drunk. Throughout the rest of the discussion, however, we will ignore these contextually limited readings and consider only 'un-island-ed' (ia) readings of *why* (*NOT*).



(58) Context: In truth, John went to the party.

A: John told Mary that he didn't go to the party.

B: Why? = Why did John tell Mary that he didn't go?

✓ *why* ~ *tell*: What reason did John have for telling Mary that he didn't go?

✓ *why* ~ *go*: What reason did John give Mary for not going?

B': Why NOT? ≠ Why did John tell Mary that he didn't go?

\* *why* ~ *tell*: What reason did John have for telling Mary that he didn't go?

✓ *why* ~ *go*: What reason did John give Mary for not going?

Thus the reason and negation components of *why NOT* must be associated with the same clause. This restriction would be unexpected if *why* and *NOT* were independent pieces. There would be nothing to stop *why* originating in the higher clause and *NOT* associating with the negation in the lower clause to derive the unavailable reading of (58B'). Instead, *why NOT* is behaving as a single, fused item.

Thus the one good reading of *Why NOT?* in (58) involves both the reason and the negation coming from the lower clause. We predict that this reading should be blocked by turning the lower clause into an island. This prediction is fulfilled by adding a wh-island to (58), as in (59). Removing the 'reason for not going' reading renders B unambiguous, leaving the 'reason for telling' reading intact. B', however, is left with no readings, and is therefore judged ungrammatical:

(59) A: John told Mary who didn't go to the party.

B: Why? = Why did John tell Mary who didn't go?

✓ *why* ~ *tell*: What reason did John have for telling Mary that he didn't go?

\* *why* ~ *go*: What reason did John give Mary for not going?

B': \* Why NOT?

\* *why* ~ *tell*: What reason did John have for telling Mary that he didn't go?

\* *why* ~ *go*: What reason did John give Mary for not going?

In sum, *why NOT* behaves as a unit. The reason being questioned by *why* and the negation with which *NOT* is concordant must originate in the same clause.

A consequence of treating *why NOT* as a unit is that the *NOT* is different to the one observed with stripping clausal ellipsis, as in (60):

(60) John went to the party, NOT MARY!

While this might initially seem like a shame, there are independent reasons to want to keep stripping *NOT* separate from *why NOT*. First, stripping *NOT* does not require a negative antecedent. Rather, it introduces a new negation, in concert with another contrastive element (cf. note 19). Second, the word order of *why NOT* is exceptional in that the *NOT* comes second. Third, and moreover, *why NOT* is not productively constructed. *Why* is the only *wh*-word that participates in this frame; cf. *\*when NOT*, *\*where NOT*, *??how NOT*.

We turn finally to an apparent exception to the requirement for *why NOT* to have a negative antecedent. There is no syntactic negation in the antecedent in (61), yet *why NOT* is perfectly possible:

(61) Either the Board grants the license by December 15 or it explains why NOT  
the Board grants the license by December 15.

Instructively, as in (55) and subsequently, ellipsis is just as good without pronouncing *NOT*, and without changing the interpretation, in (62):

(62) Either the Board grants the license by December 15 or it explains why  
the Board **didn't** grant the license by December 15.

In (62), the syntactic polarity switches from positive in the antecedent clause to negative in the elided clause. Kroll (2019) successfully accounts for (62) and other examples where the clausal ellipsis site is interpreted with the opposite polarity to its antecedent. By 'Local Givenness', a TP can be elided if it is entailed by the local context, modulo existential

closure.<sup>21</sup> For the most part, Kroll’s (2019) pragmatically-based theory makes the same predictions as Merchant (2001), which is based on semantic entailments in the global context. Predictions differ when there is a difference between the global and local context. Such is the case with exclusive disjunction, *either . . . or*. Following Karttunen (1974), the local context for the second disjunct is the global context intersected with the negation of the first disjunct. In other words, we consider the second disjunct under the assumption that the first disjunct was false. Consequently, when a clausal ellipsis site in a second disjunct takes the first disjunct as antecedent, the polarity is forced to switch, as in (62).

Thus while polarity switches involve a syntactic mismatch, from Kroll’s (2019) perspective they involve a pragmatic match with the local context of the ellipsis site. This pragmatic match account can be straightforwardly applied to (61) with *why NOT*. The ellipsis site is negative, as *why NOT* requires. Hence pronouncing *NOT* in (62) is possible for the same reason that it is possible to interpret negation inside the ellipsis site (62). Overall, the negative antecedent for *why NOT* can be provided syntactically, as by sentential negation in (55); or pragmatically, as by exclusive disjunction in (61).<sup>22</sup>

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<sup>21</sup>In full, Kroll (2019: 31, ex. 39) defines Local Givenness as in (i):

- (i) Local Givenness: A TP  $\alpha$  can be deleted *iff*  $\text{ExClo}([\alpha]^{\text{S}})$  expresses a proposition  $p$ , such that  $c_L \subseteq p$  and  $p$  is maximally salient.

In words, a TP can be deleted if and only if its existential closure expresses a proposition that is entailed by the local context and is maximally salient.

<sup>22</sup>The negativity required by *why NOT* seems to be sentential. Downward entailing operators do not generally allow *why NOT* in (i), while the more *not-y* ones in (ii) do:

- (i) { \*At most two / ?\*Few } students went to the party, but I don’t know why NOT.
- (ii) { ?Nobody / (?)Not everyone } went to the party, but I don’t know why NOT.

In conclusion, negation counts for contrast in VPE, but is troublesome for clausal ellipsis. This difference aligns with VPE's sensitivity to contrast, as opposed to the requirement for sameness in clausal ellipsis. Clausal ellipsis with *why NOT* requires a pragmatically if not syntactically negative antecedent. The negation is not 'new', but is instead concordant with a clause that is already specified as negative. Further, *why NOT* is a single item, in that the reason and negation must be associated with the same clause.

## **6 Voice mismatch, non-actuality, existentials, and contrast**

This section argues that differences in the acceptability of ellipsis with voice mismatches, previously attributed to processing effects, can be accounted for in terms of the parallelism condition in (1). Doing so sheds light on a wider range of ameliorating factors, and leads to the conclusion that implicit existentials do not count for contrast.

Voice mismatches can be acceptable in ellipsis (see Merchant 2013: 78 for extensive references). In (63), for example, (a) is relatively acceptable despite the switch from a passive antecedent to an active elliptical clause. However, replacing *should have been* with indicative *was* is distinctly unacceptable in (b):

- (63) a. ? This information should have been released, but Gorbachev didn't.  
b. \* This information was released, but Gorbachev didn't.

Grant et al. (2012) propose that the difference in (63) is due to the role of 'Non-Actuality Implicatures' (NAIs) (cf. Clifton Jr. & Frazier 2010). Voice mismatches are fundamentally ungrammatical (Arregui et al. 2006), but can achieve higher levels of acceptability if the processor is guided towards a suitable repair. NAIs, conveyed by *should*, *want to*, *be eager to*, and the like, implicitly contrast the actual versus described states of affairs. With respect to

(63), the antecedent *This information should have been released* implies that the information has not been released. These alternatives suggest an implicit Question Under Discussion (QUD) — *Was the information released?* — that guides the processing of the elliptical clause that comments on it, thereby elevating the acceptability of ungrammatical ellipsis.<sup>23</sup> Grant et al. (2012) present experimental evidence that antecedents containing NAI triggers improve acceptability and speed up processing of mismatched ellipsis in cases like (63).

Previous chapters of this dissertation have made use of F-marking on Romero & Han's (2004) VERUM operator, per Hardt & Romero (2004). Focus on VERUM and NAIs seem to be getting at something similar. Grant et al. (2012: 335) view NAIs as an additional sort of alternative that introduces potential QUDs, further to alternatives implied by question and constituent focus (Rooth 1992a). The parallelism condition in (1), however, takes account of all these kinds of alternatives under the umbrella of focus semantics. Clause (ii) does for questions, and clause (i) for focus, including intensionality contrasts via focus on VERUM.

This rest of this section sketches how the difference in (63) could be accounted for in terms of the integrated, focus-based condition in (1). As well as suggestiveness of concept, this approach gives insight into other ways that voice mismatch ellipsis can be improved upon, beyond the difference between *should have been* and *was* in (63).

With some contextual accommodation, (63a) with *should* passes the parallelism condition in (1). There are two differences between the antecedent clause A and the elliptical clause E. First, where the agent is left implicit in A, *Gorbachev* is explicitly the agent in E. Notice that *Gorbachev* is not focused in (63a); nor can he be in (64):

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<sup>23</sup>It is not clear that 'implicature' is the appropriate term for what Grant et al. (2012) have in mind. It may be that *should* implicates *not* in (63), but this is not so in the general case. A sentence like *John wants to leave* raises the issue of whether he will leave, but does not implicate either way that he will or won't.

(64) ?\* This information should have been released, but GORBACHEV didn't.

While the agent difference in (63a) cannot be neutralised by contrast, it can be accommodated. As background, we assume that Gorbachev is the person under obligation to release the information. This assumption is spelled out in the first line of the ellipsis licensing calculations in (65), below. In a sense, we read Gorbachev into the first clause, making for parallelism with the elliptical clause.

The second difference between the two clauses is between *should* and *DIDN'T*. Taking accent on *DIDN'T* to realise focus on the intensional operator VERUM, the modality of the first clause makes it a good candidate to be a member of the focus alternatives to the second. In concert with the accommodation, focus membership and contrast are satisfied and ellipsis successfully licensed as in (65):

(65) ? This information should have been released, but Gorbachev DIDN'T<sub>F</sub>.

Background:  $\exists e.\text{info-release}'(e) = \exists e.\text{info-release}'(e) \wedge \text{agent}(e,g)$

$\varepsilon$  = release the information

A = Should [ the information be released ]

$\llbracket A \rrbracket$  = should'( $\exists e.\text{info-release}'(e)$ )

= should'( $\exists e.\text{info-release}'(e) \wedge \text{agent}(e,g)$ ) (by assumption)

E = VERUM<sub>F</sub> [ Gorbachev release the information ]

$\llbracket E \rrbracket$  = for-sure'( $\exists e.\text{info-release}'(e) \wedge \text{agent}(e,g)$ )

F(E) = { For sure the information was released by Gorbachev, Masha thinks

the information was released by Gorbachev, ..., Ivan hopes the information

was released by Gorbachev, Ivan hopes the information wasn't released by

Gorbachev, ..., The information should have been released by Gorbachev, ... }

$\llbracket A \rrbracket \in F(E)$  and  $\llbracket A \rrbracket \neq \llbracket E \rrbracket$

Without *should* in (63b), however, we are deprived of the ability to accommodate focus membership. With indicative *was*, the sentence contradicts the background assumption that supports focus membership in (65).<sup>24</sup> The divergent results of reading Gorbachev into the first conjunct of fully pronounced versions of (63) are given in (66):

- (66) a. This information should have been released by Gorbachev<sub>g</sub>,  
but he<sub>g</sub> didn't release it.
- b. # This information was released by Gorbachev<sub>g</sub>, but he<sub>g</sub> didn't release it.

With accommodation blocked by the contradiction in (66b), there is no consistent way to satisfy focus membership for (63b). If we make the same background assumption as in (65) to license ellipsis, the sentence ends up contradicting the route to its own construction. And without the background assumption, focus membership will not go through. Hence (63b) is ungrammatical.

Thus the difference in (63) can be captured in terms of the parallelism condition in (1).<sup>25</sup> Moreover, (1) offers insight into other ways that ellipsis can be improved upon in

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<sup>24</sup>Recall the discussion of (52) above and in chapter three.

<sup>25</sup>This line of reasoning in terms of (1) also offers insight into the intuitive difference in (i) (Grant et al. 2012: 333, exx. 13, 14):

- (i) a. The garbage wasn't taken out but Sally will.  
b. ?? The garbage was taken out but Sally didn't.

Grant et al. (2012) attribute the difference to the location of negation. Negation in the antecedent (a) carries a non-actuality implicature (NAI), where negation in the elliptical clause (b) does not. However, negation leads to entailments rather than implicatures, and the entailment dooms any attempt to read Sally into the antecedent, as spelled out in (ii). In (a), not-p in the past does not prevent p in the future. In (b), on the other hand, p in the past

(63b). Besides intensional things like *should*, ellipsis is good with indicative mood and voice mismatch if there is something to contrast *Gorbachev* against. We saw in (64) that *Gorbachev* could not be focused in (63b). With an explicit passive *by*-phrase, however, *Gorbachev* can be focused in (67):

(67) ? This information was released by Dmitry, so GORBACHEV DIDN'T.

With an explicit contrasting agent, it is possible to satisfy parallelism and license ellipsis for (67) as in (68). This time, the agent difference between the two clauses is mediated by focus rather than contextual accommodation. Given the lack of intensionality in A, accent on *DIDN'T* is taken to realise polar focus rather than focus on VERUM. The agent and polarity contrasts combine to license ellipsis for (67) as in (68):

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contradicts not-p in the past:

- (ii) a. The garbage wasn't taken out by Sally, but Sally will take the garbage out.
- b. # The garbage was taken out by Sally but Sally didn't take the garbage out.

From this perspective, (ia) is good not due to the negation in the antecedent, but to *will* in the elliptical clause. To wit, (iii) switches the position of negation from (ib). Ellipsis is ungrammatical, since contradiction arises, parallel to (iib). Thus negation in the antecedent is of no help without *will* in the elliptical clause:

- (iii) ?? The garbage wasn't taken out but Sally did.



(68) ? This information was released by Dmitry, so GORBACHEV<sub>F</sub> DIDN'T<sub>F</sub>.

$\varepsilon$  = release the information

A = The information was released by Dmitry

$\llbracket A \rrbracket = \exists e. \text{info-release}'(e) \wedge \text{agent}(e,d)$

E = DIDN'T<sub>F</sub> GORBACHEV<sub>F</sub> release the information

$\llbracket E \rrbracket = \neg \exists e. \text{info-release}'(e) \wedge \text{agent}(e,g)$

$F(E) = \{ f(\exists e. \text{info-release}'(e) \wedge \text{agent}(e,x)) \mid f \in \{ \lambda p.p, \lambda p.\neg p \}, x \in D_e \}$

$\llbracket A \rrbracket \in F(E)$  and  $\llbracket A \rrbracket \neq \llbracket E \rrbracket$

Drawn up against a theory of repair guided by NAIs, therefore, an approach in terms of the parallelism condition in (1) can explain as much and more. The difference between *was* and *should have* in (63) can be captured by focus on VERUM just as much as NAIs. In addition, the approach here offers insight into the amelioration of ellipsis with contrasting *by*-phrase agents.

On a broader level, an analysis in terms of (1) is consistent with voice mismatches being grammatical (Merchant 2013). The processing perspective on the pair in (63) is that voice mismatches are fundamentally ungrammatical (b) (Arregui et al. 2006), but grow more acceptable with NAIs (a) (Grant et al. 2012). The parallelism approach gives grounds for voice mismatches being fundamentally grammatical (a), with (b) ungrammatical for failing the necessary condition on ellipsis in (1).

Finally, in addition to the *by*-phrase agent *Dmitry* in (67), ellipsis is possible with the explicit indefinite *someone* in the *by*-phrase in (69):

(69) ? This information was released by someone, but GORBACHEV DIDN'T.

The success of ellipsis in (69) is not so surprising given the ability of *someone* and *Mary* to contrast in (70), quite apart from the issue of voice mismatch:

(70) Someone left, but Mary didn't leave.

Hence ellipsis would be licensed for (69) along the lines of (67). However, the success of ellipsis in (69) is somewhat surprising given the failure of ellipsis in the original example in (63b). The implicit existential passive agent is apparently unavailable for contrast.

Independently of our concerns about voice mismatch here, Johnson (2019: ex. 21) shows with (71) that existentials differ in contrastivity based on whether they are explicit or implicit. Pseudogapping ellipsis is passable in (a) based on the contrast between *something* and *food*. But without saying *something*, the implicit existential object argument of *eat* does not count for contrast; hence the badness of ellipsis in (b). Without ellipsis in (c), the sentence can be good by focusing the whole VP *eat food*, which contrasts with the VP *eat*:<sup>26</sup>

- (71) a. Jill<sub>j</sub> will eat something, but she<sub>j</sub> won't eat ~~food~~<sub>F</sub>.  
 b. ?\* Jill<sub>j</sub> will eat, but she<sub>j</sub> won't eat ~~food~~<sub>F</sub>.  
 c. Jill<sub>j</sub> will eat, but she<sub>j</sub> won't [eat food]<sub>F</sub>.

This difference in contrastivity accords with the very limited ability of implicit existentials to do anything much. As shown in (72), compared with overt indefinites (a), implicit existentials are unable to take wide scope (Fodor & Fodor 1980):

- (72) a. Every student ate something.     $\forall >> \exists$              $\exists >> \forall$   
 b. Every student ate.                     $\forall >> \exists$              $*\exists >> \forall$

In conclusion, the intuition behind NAIs can be ‘semantified’ in terms of focus on VERUM. This integration leads to broader empirical coverage under the umbrella of (1). What is important for (1) is that there is a means to contrast: intensionality is one way; focus on individuals is another. This perspective provides a basis for the view that voice mismatches are fundamentally grammatical (Merchant 2013). Finally, overt indefinites provide a means of contrast that implicit existentials do not.

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<sup>26</sup>There is an appreciable difference between (a) and (b), even if (a) is not particularly good. Recall the discussion of (pseudo)gapping and ‘core contrast’ in section 1.

## 7 Kuno-Levin effects

This section discusses ‘Kuno-Levin effects’ and the extent to which they can be accounted for in terms of the parallelism condition in (1). As observed by Kuno (1975), and taken up by Levin (1979), VPE is not possible in a correction (73), or in answer to an alternative (74) or wh-adjunct question (75) (cf. Kuno 1975: 171, ex. 46c; 162, ex. 6; 162, ex. 7):

(73) Mary didn’t visit museums in PARIS;

- a. she visited museums in LONDON.
- b. \* she did ~~visit museums~~ in LONDON.

(74) Did John recommend Mary with a phone call or with a letter?

- a. He recommended her with a letter.
- b. \* He did ~~recommen~~ ~~her~~ with a letter.

(75) Where did John go racing?

- a. He went racing in Paris.
- b. \* He did ~~go racing~~ in Paris.

In each case, the full answer in (a) is grammatical, but (b) with VPE is not.

In overview, the parallelism condition in (1) can account for (73), but not (74) or (75), where VPE is incorrectly predicted to be licensed via clause (ii). The possibility of bare answers to (74) and (75) is reminiscent of MaxElide effects; but the paradigm here has a different empirical signature. An explanation for (75) in terms of syntactic parallelism would not extend to (74). Still, the parallelism condition from (1) can be brought back into play for cases where VPE is rescued by intensional embedding.

The parallelism condition from (1) correctly predicts ellipsis to be ungrammatical in the correction in (73). It is instructive to compare (73) with (76) (Kuno 1975: 163, ex. 16), where VPE is good:

- (76) Mary didn't visit museums in PARIS;
- a. but she DID visit museums in LONDON.
  - b. but she DID ~~visit museums~~ in LONDON.

The difference from (73) is the addition of polarity contrast with *DID* in (76), as brought out by *but*. With this polarity contrast, in addition to the location contrast, VPE is licensed in (76) based on clause (i) of (1). As shown in (77), polar focus and focus on the location satisfy focus membership and contrast:

- (77) A = not Mary visit museums in PARIS       $\llbracket A \rrbracket = \text{not-visit}'(\text{museums}')(\text{m}) \text{ in } p$   
 E = DO Mary visit museums in LONDON       $\llbracket E \rrbracket = \text{do-visit}'(\text{museums}')(\text{m}) \text{ in } l$   
 $F(E) = \{ z\text{-visit}'(\text{museums}')(\text{m}) \text{ in } x, \mid x \in D_e, z \in \{ \text{do}, \text{not} \} \}$   
 $\llbracket A \rrbracket \in F(E) \text{ and } \llbracket A \rrbracket \neq \llbracket E \rrbracket$

Without the polarity contrast, negation is corrective or metalinguistic (Horn 1985) in (73), associating with the focus (i.e. not Paris, but London) rather than negating the whole proposition. Hence ellipsis fails to be licensed in (78), since A and E differ in the presence of *not* over the location:

- (78) A = Mary visit museums not in PARIS       $\llbracket A \rrbracket = \text{visit}'(\text{museums}')(\text{m}) \text{ not in } p$   
 E = Mary visit museums in LONDON       $\llbracket E \rrbracket = \text{visit}'(\text{museums}')(\text{m}) \text{ in } l$   
 $F(E) = \{ \text{visit}'(\text{museums}')(\text{m}) \text{ in } x \mid x \in D_e \}$        $\llbracket A \rrbracket \notin F(E)$

However, (1) incorrectly predicts that VPE should be good in answer to alternative (74) and adjunct (75) questions. In both cases, the question antecedent denotes a set (Hamblin 1973), invoking clause (ii) of (1). Clause (ii) requires subsethood — the same requirement as placed on question-answer pairs (Rooth 1992a). Thus (1) predicts that ellipsis in answers should track question-answer congruence. That is, ellipsis should be good in any congruent answer. This prediction plays out well for plain polar questions. The question in (79) can be answered fully (a), or elliptically (b) based on the calculations in (80):

(79) Did John go racing?

- a. Yes, he went racing.
- b. Yes, he did ~~go racing~~.

(80) A = Did John go racing                       $\llbracket A \rrbracket = \{ \text{go-race}'(j), \text{not-go-race}'(j) \}$   
E = He did go racing                               $\llbracket E \rrbracket = \text{go-race}'(j) \text{ in } p$   
F(E) =  $\{ \text{go-race}'(j), \text{not-go-race}'(j) \}$      $\llbracket A \rrbracket \subseteq F(E)$

The failure of ellipsis in (74) and (75) shows that this prediction is incorrect. As spelled out in (81) and (82), the answers are congruent (a), but ellipsis (b) is not allowed:

(81) A = Did John recommend Mary with a phone call or with a letter?

$\llbracket A \rrbracket = \{ \text{recommend}'(m)(j) \text{ with } c, \text{recommend}'(m)(j) \text{ with } l \}$   
E = He did recommend Mary with a LETTER<sub>F</sub>  
 $\llbracket E \rrbracket = \text{recommend}'(m)(j) \text{ with } l$   
F(E) =  $\{ \text{recommend}'(m)(j) \text{ with } x \mid x \in D_e \}$   
 $\llbracket A \rrbracket \subseteq F(E)$

(82) A = Where did John go racing?               $\llbracket A \rrbracket = \{ \text{go-race}'(j) \text{ in } x \mid x \in D_e \}$   
E = He did go racing in PARIS<sub>F</sub>                       $\llbracket E \rrbracket = \text{go-race}'(j) \text{ in } p$   
F(E) =  $\{ \text{go-race}'(j) \text{ in } x \mid x \in D_e \}$          $\llbracket A \rrbracket \subseteq F(E)$

In sum, while semantic parallelism can handle corrections (73), it is unable to rule out ellipsis in alternative (74) and wh-adjunct (75) questions. Clause (ii) of (1) incorrectly predicts that ellipsis should track question-answer congruence.

We might try to make sense of Kuno-Levin effects in view of the goodness of clausal ellipsis. Setting aside chapter four, we might be tempted to reduce Kuno-Levin effects to MaxElide effects (e.g. Merchant 2008b; Takahashi & Fox 2005). As shown in (83) and (84), bare answers are perfectly possible responses to (74) and (75). The structure indicated in (c) commits to a 'bare argument ellipsis' or 'stripping' analysis involving clausal ellipsis

(Merchant 2004). From a MaxElide perspective, the possibility of larger ellipsis in (c) might outcompete smaller ellipsis in (b), rendering it ungrammatical:

(83) Did John recommend Mary with a phone call or with a letter?

- a. He recommended her with a letter.
- b. \* He did ~~recomm~~end her with a letter.
- c. With a letter he ~~recomm~~ended her *t*.

(84) Where did John go racing?

- a. He went racing in Paris.
- b. \* He did ~~go~~ racing in Paris.
- c. In Paris he ~~went~~ racing *t*.

However, Kuno-Levin effects do not exhibit the same empirical profile as MaxElide effects. First and foremost, (83) and (84) are adjunct wh-questions. MaxElide effects do not arise with adjuncts in sluicing (Schuyler 2001), as shown in (85):

(85) John went racing, but I don't know where

- a. he went racing *t*.
- b. he did ~~go~~ racing *t*.
- c. ~~he~~ went racing *t*.

Rather, MaxElide effects classically arise with objects, as in (86):

(86) John backed a horse, but I don't know which (one)

- a. he backed *t*.
- b. \* he did ~~back~~ *t*.
- c. ~~he~~ backed *t*.

Conversely, Kuno-Levin effects do not arise with objects. In response to an object alternative (87) or wh-question (88), VPE is possible in (b); at least to the extent that another clause along the parenthesised lines is spoken or accommodated to license topicalisation:<sup>27</sup>

- (87) Did John recommend Mary or Beth?
- a. He recommended Beth.
  - b. Beth, he did recommend ~~t~~. (Mary, he didn't recommend ~~t~~.)
  - c. Beth he recommended ~~t~~.
- (88) Which horse did John back?
- a. He backed Secretariat.
  - b. Secretariat, he did back ~~t~~. (Angle Light, he didn't back ~~t~~.)
  - c. Secretariat he backed ~~t~~.

Subjects, at least, do pattern the same way in both Kuno-Levin and MaxElide effects. Across (89) (cf. Kuno 1975: 161, ex. 2) and (90), VPE (b) and clausal ellipsis (c) are equally good:

- (89) Who went racing?
- a. Ralph went racing.
  - b. Ralph did go racing.
  - c. Ralph went racing.

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<sup>27</sup>The parenthesised clauses in (87) and (88) may be doing much more than licensing topicalisation, however. It could be that they are directly responsible for licensing ellipsis. The combination of polarity focus and constituent focus would play out along the lines of (77), above, with each clause taking the other as antecedent. Nothing in (1) precludes an antecedent for ellipsis from itself being elliptical.

- (90) Someone went racing, but I don't know who
- a. *t* went racing.
  - b. *t* did ~~go racing~~.
  - c. ~~*t* went racing~~.

In sum, Kuno-Levin and MaxElide effects exhibit opposite behaviour with respect to adjuncts and objects. This empirical difference argues against reducing the badness of VPE in (74) and (75) to a competition-based MaxElide effect.

Like the semantic parallelism condition in (1) and assimilation to MaxElide effects, syntactic parallelism also fails to account for the badness of VPE across (74) and (75). Per the bracketed diagrams in (91), A-bar movement and head movement are all over the place for (75) across question (a) and answer (b):

- (91) a. [ where [ did [ [ John go racing ] *t<sub>where</sub>* ] ] ]?  
 b. [ [ [ [ He went racing ] in Paris ] ] ]

Compare the improvement of VPE in (92). Lining up the A-bar movement of the question word *where* and the answer *In Paris* makes ellipsis good, provided the topicalisation movement can be accommodated. The A-bar movements are now aligned, just as they were in the object case in (88), and as they have been for clausal ellipsis throughout:

- (92) Where did John go racing?
- a. In Paris, he went racing.
  - b. In Paris, he did ~~go racing~~. (In Deauville, he didn't ~~go racing~~.)
  - c. In Paris ~~he went racing~~.

Thus the badness of VPE in (75b) might be attributable to a lack of syntactic parallelism.<sup>28</sup>

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<sup>28</sup>Cf. Kuno's (1975) original analysis in terms of the syntactic height of adjunction; though for critique of Kuno (1975), see Sag (1976b).



However, such an explanation would not extend from wh-adjunct questions (75) to alternative questions (74). Per (93), the PP is ‘in the same place’ across question and answer, yet ellipsis is bad in (b). All the while, ellipsis is good with ‘mismatched’ fronting in (c):

- (93) Did John recommend Mary with a phone call or with a letter?
- a. He recommended her with a letter.
  - b. \* He did ~~recomm~~end her with a letter.
  - c. With a letter he ~~recomm~~ended her *t*.

There remains a difference in head movement across question and answer in (93). But even after controlling for this difference with an embedded alternative question in (94), ellipsis remains bad in (b):

- (94) Beth wouldn’t say whether John recommend Mary with a phone call or with a letter.
- a. He recommended her with a letter.
  - b. \* He did ~~recomm~~end her with a letter.

Thus an explanation in terms of syntactic parallelism, while initially promising for wh-questions, would not extend to alternative questions.<sup>29</sup>

Still, while semantic parallelism has been on the back foot in this section, the parallelism condition in (1) may have a role to play in accounting for an additional member of the Kuno-Levin paradigm in terms of intensional embedding. VPE is good in (95d):

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<sup>29</sup>Further to note 27, the idea that polar opposites allow for ellipsis gains further credibility from the fact that topicalisation is not necessary in (i) and (ii):

- (i) Did John recommend Mary with a phone call or with a letter?  
He didn’t ~~recomm~~end her with a phone call, but he did ~~recomm~~end her with a letter.
- (ii) Where did John go racing?  
He didn’t ~~go racing~~ in Paris; but he did ~~go racing~~ in Deauville.

- (95) Where did John go racing?
- a. He went racing in Paris.
  - b. \* He did ~~go racing~~ in Paris.
  - c. In Paris.
  - d. (?) Bill says he did ~~go racing~~ in Paris.

Ellipsis in (95d) might be licensed based on clause (i) of (1). *Bill says* could be read as contrasting with an implicit *I am asking* in the antecedent; an implicit *The true answer is* that the question demands; or, more bluntly, with an identity function on propositions. With semantic parallelism at this higher level, the problem with ellipsis in (b), whatever it may be, dissipates.

Overall, the failure of VPE in answer to alternative (74) and wh-adjunct (75) questions runs counter to the predictions of the parallelism condition in (1). Specifically, ellipsis ought to be licensed via clause (ii), tracking question-answer congruence. These counterexamples cannot be explained away in terms of competition from clausal ellipsis or syntactic parallelism.

The lesson may be that clause (ii) should not be so readily invoked to circumvent clause (i)'s requirement for contrast. Indeed, it is via clause (i) that we might be able to explain the ameliorating effect of intensional embedding in (95d). Future work could consider the extent to which Kuno-Levin effects can be analysed as failures of 'core contrast' — recall the discussion in section 1, particularly with respect to pseudogapping.

## 8 *Only one more thing*

This final section discusses the interaction of *only*, focus, and ellipsis. While the central fact has been (foot)noticed before, this section adds an important member to the paradigm (viz. 96d) and situates the observation in terms of independent characteristics of *only* and ellipsis. Despite the focus-based character of the condition in (1), this fact about the interaction of focus and ellipsis lies beyond its purview.

Consider the paradigm in (96). Fully pronouncing (a) is fine: the object *CHEESE* is stressed in the first sentence as the focus associate of *only*; while in the second sentence, *cheese* qualifies for phonological deaccenting. Usually, words that qualify for deaccenting and have an identical antecedent also qualify for ellipsis (Tancredi 1992, Rooth 1992b). However, ellipsis of the VP *eat cheese* is crashingly bad in (b):

- (96) a. John only eats CHEESE. BILL only eats cheese, too.  
b. \* John only eats CHEESE. BILL only does eat ~~cheese~~, too.  
c. John only eats CHEESE. BILL does ~~only eat cheese~~, too.  
d. John only eats CHEESE. BILL does eat ~~cheese~~, too.

If *only* is not pronounced, on the other hand, VPE is allowed in the second sentence. The ellipsis site is then ambiguous between including (c) or excluding (d) *only*. The option of excluding *only* (d) is important in showing that the first sentence makes available an antecedent for VPE of *eat cheese*. The goodness of (d) rules out an explanation for (b) on the grounds of there being no elidable VP constituent that excludes *only*.

The paradigm in (96) is a bare bones version of (97) from Han & Romero (2004: 198-9, exx. 70, 71; note 15, ex. ii). In (a), *only* happily associates with focus-marked *FRUIT*. In (b), overt *only* fails to associate with the elided *FRUIT*, resulting in ungrammaticality. In (c), both *only* and its associated *FRUIT* are elided, and the result is grammatical:

- (97) a. Mary only told John to eat FRUIT in the morning.  
       Sue only [<sub>VP</sub> told him to [<sub>VP</sub> eat FRUIT<sub>F</sub> in the morning ] ], as well.
- b. \* Mary only told John to eat FRUIT in the morning.  
       Sue only [<sub>VP</sub> told him to [~~<sub>VP</sub> eat FRUIT<sub>F</sub> in the morning~~ ] ], as well.
- c. Mary only told John to eat FRUIT in the morning.  
       Sue told him to [~~<sub>VP</sub> only [<sub>VP</sub> eat FRUIT<sub>F</sub> in the morning~~ ] ], as well.

Han & Romero (2004) conclude that focus-marked constituents cannot be elided (b) unless the ellipsis site contains both the focus-marked constituent and its associated operator (c).

Beaver & Clark (2008: 177, ex. 7.52) contrast the behaviour of *always* and *only* in ellipsis with (98), where (98b) is parallel to (96b):

- (98) Context: At the ceremony, some soldiers salute and others fire a round in the air.  
       Some do both. What about Kim and Sandy?
- a. Kim always SALUTES because Sandy always does.  
       ‘Kim salutes at every ceremony because Sandy salutes at every ceremony.’
- b. \* Kim only SALUTES because Sandy only does.  
       Cannot mean: ‘Kim salutes (and does nothing else) because Sandy salutes (and does nothing else).’

Finally Büring (2015: 81, ex. 42; note 23), citing Han & Romero (2004), notes that secondary occurrence focus on *PARIS* can be elided along with its associated *only* in (99), assuming the fragment answer is generated by clausal ellipsis:<sup>30</sup>

- (99) A: What did John only eat in PARIS<sub>F</sub>?  
       B: CREPES John only ate *t* in PARIS<sub>F</sub>

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<sup>30</sup>See also Assmann et al. (2018: 120f.).

Collecting these observations and insights together, (96) can be explained per (100), where F-marking is indicated explicitly:

- (100) a. John only eats CHEESE. BILL only eats cheese<sub>F</sub>, too.  
b. \* John only eats CHEESE. BILL only does eat ~~cheese~~<sub>F</sub>, too.  
c. John only eats CHEESE. BILL does ~~only eat~~ ~~cheese~~<sub>F</sub>, too.  
d. John only eats CHEESE. BILL does eat ~~cheese~~, too.

In (a), *cheese<sub>F</sub>* is F-marked as the associate of *only*, but is deaccented as a second occurrence of focus relative to *BILL*, and given *CHEESE*. The attempt at eliding a focus-marked constituent is ungrammatical in (b). Ellipsis is good in (c), however, since the ellipsis site contains both the focus-marked constituent and its associated operator. Finally in (d), *cheese* does not need to be F-marked in the absence of *only*, so ellipsis is allowed. In sum, whereas ‘live’ foci cannot be elided, ‘consumed’ ones can be.<sup>31</sup>

The rest of this section considers two ways in which the interaction between *only* and ellipsis reflects the broader characteristics of each. First, the paradigm in (96) reflects the

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<sup>31</sup>The pattern in (100) persists in (i), where the word order of *only* and *eats* is reversed:

- (i) a. John eats only CHEESE. BILL eats only cheese, too.  
b. \* John eats only CHEESE. BILL only does eat ~~cheese~~, too.  
c. John eats only CHEESE. BILL does eat ~~only~~ ~~cheese~~, too.  
d. John eats only CHEESE. BILL does eat ~~cheese~~, too.

Again, the option of excluding *only* (d) from the ellipsis site shows that the first sentence makes available an antecedent for VPE of *eat cheese*. Given that *only* linearly intervenes between *eat* and *CHEESE* in the first sentence, the availability of (d) might be surprising. It would be less surprising, however, if both *only* and *CHEESE* are structurally outside VP (Kayne 1998).

broader behaviour of focus-sensitive operators in not being able to associate with silent things (see Beaver & Clark 2008: ch.7 for discussion and references). Just as *only* could not associate into an ellipsis site in (96), it cannot associate with a trace of A-bar movement. In (101), for example, *only* cannot associate with the trace of *who*. Consequently, the question cannot be answered with focus on the correlate of *who*, i.e. *SUE* in (a). Rather, *only* must be read as associating with the verb, as brought out by (b):

- (101) Who did Bill only talk to *t*?
- a. \* Bill only talked to SUE.
  - b. Bill only TALKED to Sue.

Second, the interaction of *only* and ellipsis can be contextualised as another way that ellipsis repairs otherwise problematic sentences. In (96), the problem with *only* associating into an ellipsis site (b) is repaired by including *only* in the ellipsis site (c). Famously, ellipsis ameliorates island violations (Ross 1967). In (102), the relative clause island violation in (a) is ameliorated by sluicing in (b):<sup>32</sup>

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<sup>32</sup>Slightly less famously, ellipsis ameliorates islands only if the whole structure up to the wh-phrase is deleted. Hence island violations are still felt with VPE in (i) (Merchant 2008b). Contrastive focus isolates the island violation as the problem, as opposed to a MaxElide effect or contrast failure:

- (i) a. \* They want to hire someone who speaks a Balkan language, but I don't know which Balkan language YOU do want to hire a man who speaks *t*.
- b. \* They want to hire someone who speaks a Balkan language, but I don't know which Balkan language they want to hire a WOMAN who does speak *t*.

The whole relative clause island is deleted in (a), but this is not sufficient. The problem to be deleted is not just the island itself, but any trace of (successive cyclic) movement.

- (102) a. \* They want to hire a man who speaks a Balkan language, but I don't know which Balkan language they want to hire a man who speaks *t*.
- b. They want to hire someone who speaks a Balkan language, but I don't know which Balkan language ~~they want to hire a man who speaks~~ *t*.

Another example of the healing power of ellipsis came up in the previous chapter in view of (103):

- (103) BETH knows what John will eat *t*.
- a. \* CAROL also knows what he will eat ~~*t*~~.
- b. CAROL also does ~~know what he will eat~~ *t*.

The MaxElide effect that arises from movement out of the ellipsis site in (a) does not arise from movement within the ellipsis in (b). Or, to mirror the phrasing above, the problem with *what* associating into the ellipsis site (a) is repaired by including *what* in the ellipsis (b).

In sum, *only* presents another instance of a problem that can be elided away.

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