Contrast and verb phrase ellipsis: the case of tautologous conditionals

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0 Abstract

This paper argues that verb phrase ellipsis requires contrast. The central observation is that ellipsis is ungrammatical in tautologous conditionals; e.g. **If John wins, then he does*. Ellipsis is correctly ruled out by a focus-based theory of ellipsis (Rooth 1992a,b), but one that crucially imports focus's requirement for contrast: an elliptical constituent must have an antecedent that is not merely an alternative to it, but a 'proper' alternative. An explanation in terms of contrast failure proves superior to alternative explanations in terms of triviality and matching form. Showing as much catalogues what counts for contrast in ellipsis, encompassing negation, questions, and intensionality. Subjecting ellipsis to a contrast requirement is in direct conflict with the traditional analysis of MaxElide effects (Takahashi & Fox 2005), favouring alternative explanations (e.g. Jacobson 2019a,b), perhaps in terms of contrast itself (Griffiths 2019). Overall, this paper establishes that contrast has explanatory power in ellipsis licensing.

Keywords: ellipsis, focus, contrast, triviality, conditionals, intensionality, MaxElide

1 Introduction

Ellipsis might seem to radically undermine form-meaning mapping, in that we interpret meaning in the absence of phonological form. In (0), for example, the fully pronounced (a) has the same meaning as the elliptical (b):[1]

(0) a. If John is wrong, then Mary is wrong.

b. If John is wrong, then Mary is ~~wrong~~.

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 1976, Williams 1977, Sag & Hankamer 1984, Dalrymple et al. 1991, Fiengo & May 1994). In (0), we interpret *wrong* in the ellipsis site in (b) by drawing on the *if*-clause as antecedent.

From the perspective of 'identity' as the central notion in ellipsis licensing, we might expect complete identity to provide ideal conditions for ellipsis. In this light, the difference in (1) is surprising. We can say trivial things, like the tautologous conditional in (a); but not the same sentence with ellipsis in (b):[2]

(1) a. If John$_j$ is wrong, then he$_j$ is wrong.

b. * If John$_j$ is wrong, then he$_j$ is ~~wrong~~.

Modulo name versus pronoun, the *if*-clause and consequent are completely identical – both

[1] ~~Strikethrough~~ indicates ellipsis, but only to be explicit about the intended meaning. This paper is neutral between PF-deletion (Sag 1976, Williams 1977, Merchant 2001) and other approaches to ellipsis (e.g. Hardt 1993; Jacobson 2003, 2018).

[2] At best, (1b) seems to have a 'main verb' reading of *is*; i.e. *If John is wrong, then he exists.* See section 3.2 below regarding (1b) in a richer discourse.

amount to John being wrong. Despite this identity, ellipsis is not licensed in tautologous conditionals.

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!"[3] But whatever the rhetorical force of (1), the question pursued here is why (a) and (b) differ in grammaticality as a function of ellipsis. Further to (1) with an adjectival predicate, an example with a verbal predicate is given in (2):

(2) a. If John$_j$ wins, then he$_j$ wins.

b. * If John$_j$ wins, then he$_j$ does ~~win~~.

Based on the observation that ellipsis is ungrammatical in tautologous conditionals, this paper argues that verb phrase ellipsis (VPE) requires contrast. The contrast requirement is a crucial component of a focus-based theory of ellipsis (Rooth 1992a,b). Research in the vein of focus generally allows an elliptical constituent to have an antecedent with exactly the same meaning (e.g. Heim 1997, Rooth 1992b, Fox 1999, Fox 2000: 85, ex. 16, Takahashi & Fox 2005, Drummond 2021). But by examining ellipsis in trivial sentences, where the potential for contrast is absent or slight, the requirement for contrast comes to light.

This argument is made in section 2. The rest of the paper defends the conclusion the problem in (1b) is indeed with the ellipsis. Section 3 argues that that the problem is not the tautology. The argument is based on further data, which at the same time begin to catalogue what counts for contrast in ellipsis, including negation and questions. This leads to discussion of contrasts involving intensionality in section 4. Section 5 argues against

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[3] As Horn (1981: 326) puts it with respect to redundant free relatives (see sections 3.3 and 4, below): "These sentences may be used . . . as a way of stonewalling an embarrassing line of questioning, a way of pleading the Fifth."

a second alternative explanation for (1b) in terms of matching form. Finally, section 6 considers MaxElide effects (Schuyler 2001, Merchant 2008), in particular how subjecting ellipsis to a contrast requirement is incompatible with their standard analysis (Takahashi & Fox 2005). Fortunately, alternative explanations are available (e.g. Jacobson 2019a,b), including the promise of one based on contrast itself (Griffiths 2019). Section 7 concludes.

2 Focus, ellipsis, and contrast

This section argues that contrast is active in ellipsis licensing. 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 third presents the ungrammaticality of ellipsis in tautologous conditionals as empirical motivation for a contrast condition on VPE.

2.1 Focus

Rooth (1992a: 90, 93) proposes (3) as a constraint on focus interpretation:[4]

(3) Focus at the level of a phrase Φ requires an antecedent A such that:

i. $[\![A]\!] \in F(\Phi)$ – the focus membership condition; and

ii. $[\![A]\!] \neq [\![\Phi]\!]$ – the contrast condition

The constraint in (3) comes in two parts. First, the focus membership condition requires that the ordinary meaning of the antecedent A be a member of the focus semantic value of

[4]Only Rooth's (1992a) individual case is given in (3). Focus can also draw on a set-denoting antecedent, in which case subsethood is required: $[\![A]\!] \subseteq F(\Phi)$. This subset condition is discussed more fully in view of question antecedents in section 3.2. Rooth (1992a) implements (3) via the 'squiggle' operator, $\sim$. Squiggle enforces (3) as a presupposition on the constituent it adjoins to.

the constituent Φ containing focus. The focus semantic value of Φ, F(Φ), is calculated by replacing F(ocus)-marked constituents in Φ with things of the same type and collecting the results into a set. Where Φ contains no focus, its focus value is the singleton set containing its ordinary value. In sum, A must be an alternative to Φ.

By definition, the ordinary semantic value of a constituent is always a member of its focus semantic value – everything is an alternative to itself. The contrast condition requires further that A and Φ have distinct ordinary meanings. Overall, therefore, (3) requires that A be a 'proper' alternative to E.

By way of example, consider (4):

(4) John left before BILL_F left.

There are two options for A and Φ that license focus on *BILL* in (4). For one, focus can be evaluated at the clause level, as in (5). Informally, John leaving is a proper alternative to Bill leaving:[5]

(5) $[_\text{A}$ John left] before $[_\Phi$ BILL_F left].

$[\![\text{A}]\!] = \text{leave'(j)} \quad [\![\Phi]\!] = \text{leave'(b)} \quad F(\Phi) = \{ \text{ leave'(x)} \mid x \in D_e \}$

$[\![\text{A}]\!] \in F(\Phi)$ and $[\![\text{A}]\!] \neq [\![\Phi]\!]$

In detail, since Φ contains a focused constituent, its focus value is the set of propositions of the form *x left*, where *x* ranges over individuals. The proposition denoted by A, that John left, is a member of this set. Thus the focus membership condition is met – A is an alternative to Φ. Further, the proposition that John left is distinct from the proposition that Bill left. Thus the contrast condition is met – A is a proper alternative to Φ.

[5]Apostrophes indicate metalanguage expressions. The type of leave' is $\langle e, \langle s, t \rangle \rangle$.

Another option is to license focus on *BILL* at the subject level, as in (6):

(6) $[_A$ John] left before $[_\Phi$ $BILL_F$] left.

$[\![A]\!] = j \quad [\![\Phi]\!] = b \quad F(\Phi) = \{ x \mid x \in D_e \}$

$[\![A]\!] \in F(\Phi)$ and $[\![A]\!] \neq [\![\Phi]\!]$

Since John is an individual distinct from Bill, A is a proper alternative to Φ, as required.

The next subsection charts Rooth's (1992b) application of (3) to ellipsis. Rooth (1992b) explicitly transposes only the focus membership condition. The third subsection shows that the ungrammaticality of ellipsis in tautologous conditionals is accounted for by transposing (3) in full, including the contrast condition.

2.2 Ellipsis

Rooth (1992b) hypothesises that ellipsis is subject to similar constraints as focus (cf. Tancredi 1992); in particular, the focus membership condition, as in (7):

(7) *Ellipsis as alternative-hood*

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

$[\![A]\!] \in F(E)$

This condition requires that a phrase E containing an elided constituent ε have an antecedent A, and that the ordinary semantic value of A be a member of the focus semantic value of E. That is, A must be an alternative to E.

By way of example, consider (8):

(8) John left before $BILL_F$ did ~~leave~~.

Notice first that ellipsis cannot be evaluated at the subject level, as focus was in (6), since ε would not be contained in E. Still, Rooth (1992b: cf. exx. 22, 23; 32) entertains two independent analyses of an example like (8). First, parallel to (5), A and E can be the main clauses of each conjunct, as in (9):

(9) $[_A$ John left] before $[_E$ $BILL_F$ did ~~leave~~]. ε = leave

E = $BILL_F$ left $[\![E]\!]$ = leave'(b) F(E) = { leave'(x) | x $\in$ D_e }

A = John left $[\![A]\!]$ = leave'(j) $[\![A]\!] \in$ F(E)

In detail, the elided constituent ε is the predicate *leave*. Ellipsis is evaluated at the clause level, setting E to *$BILL_F$ left*. Since E contains a focused constituent, its focus value is the set of propositions of the form *x left*, *x* an individual. With A as *John left*, focus membership is satisfied. Thus A is an alternative to E.

In addition to taking A and E to be the main clauses, Rooth shows that focus membership can be satisfied just as well by taking A and E to be the VP of each conjunct, as in (10). Informally, leaving is a (non-proper) alternative to leaving:

(10) John $[_A$ left], before $BILL_F$ did $[_E$ ~~leave~~]. ε = left

E = left $[\![E]\!]$ = leave' F(E) = { leave' }

A = left $[\![A]\!]$ = leave' $[\![A]\!] \in$ F(E)

The elided constituent ε is again 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, by definition, the singleton set containing its ordinary value. With A as *leave*, focus membership is satisfied trivially – A is an alternative to E.

Thus the focus membership condition in (7) makes a 'doubly' correct prediction with respect to ellipsis in a simple case like (8). Alternative-hood can be satisfied substantively, as in (9), where leave'(j) is one among the many members of the set { leave'(x) | x $\in$ D_e }; or vacuously, as in (10), where leave' is a member – in fact, the only member – of the degenerate singleton set { leave' }. The next subsection argues that, further to focus membership, the contrast condition must be applied to ellipsis.

2.3 Contrast

With respect to focus, there is no question that contrast, $[\![A]\!] \neq [\![\Phi]\!]$, is crucial (Rooth 1992a; Repp 2016 for a literature overview, esp. ex. 9). With respect to ellipsis, however, Rooth (1992b) leaves the matter open as to whether contrast is required. This subsection uses the ungrammaticality of ellipsis in tautologous conditionals to argue that VPE requires contrast.

To begin, 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 (7) is satisfied for (1b) as in (11):

(11) If John$_1$ is wrong, then he$_1$ is$_F$ ~~wrong~~. ε = wrong

E = he$_1$ is$_F$ wrong A = John$_1$ is wrong

$[\![E]\!]$= wrong'(j) $[\![A]\!]$ = wrong'(j)

F(E) = { wrong'(j), not-wrong'(j) } $[\![A]\!] \in$ F(E)

The elided constituent ε is the predicate *wrong*. Ellipsis is evaluated at the clause level, setting E to *he is$_F$ wrong*. Focus on *is$_F$* introduces polar focus alternatives for E: *John is wrong*, *John is not wrong*. The antecedent A, *John is wrong*, is indeed one of the members of this set. Thus focus membership is satisfied – A is an alternative to E. Based on (7), therefore, we have an incorrect prediction of grammaticality.

Correct predictions follow from implementing the spirit of Rooth (1992b) by carrying over Rooth's (1992a) focus constraint from (3) to ellipsis in its entirety. In addition to focus membership, VPE requires contrast, as in (12):

(12) *Ellipsis as proper alternative-hood*

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

i. $[\![A]\!] \in$ F(E); and

ii. $[\![A]\!] \neq [\![E]\!]$

In other words, it is not sufficient for A to be an alternative to E; rather, A must be a proper

alternative to E.

For a simple case like of ellipsis like (8), the overall prediction does not change. For sure, evaluating ellipsis at the VP level, as in (10), will no longer succeed. While focus membership can be satisfied vacuously on degenerate singletons, contrast fails: leave means leave. But ellipsis is still licensed in (8) based on the clause level calculations in (9). Where focus membership is satisfied substantively, so is contrast: John leaving is different from Bill leaving.

But for tautologous conditionals, the prediction turns from incorrect in (11) to correct in (13). Applying (12) to (1b), the sentence is correctly predicted to be bad, since it fails the contrast condition:[6]

(13) * If John$_1$ is wrong, then he$_1$ is$_F$ ~~wrong~~. ε = wrong

E = he$_1$ is$_F$ wrong — A = John$_1$ is wrong

⟦E⟧= wrong'(j) — ⟦A⟧ = wrong'(j)

F(E) = { wrong'(j), not-wrong'(j) } — ⟦A⟧ ∈ F(E), **but** ⟦A⟧ = ⟦E⟧

The elided constituent ε is *wrong*, which is contained in E, *he is$_F$ wrong*. Focus on *is$_F$* 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: while A is an alternative to E, it is not a proper alternative to

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[6]F-marking is placed on *is* as the most natural way to try and pronounce (13). This meets the focus membership condition, isolating contrast failure as the reason for ungrammaticality. However, whatever F-marking is assigned in the consequent in (13) – 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 ellipsis good, but does so by changing the meaning of (13) to make the pronoun disjoint in reference from *John*. Setting A and E to be any larger will also fail – for related discussion, see Heim (1997: 210).

E. Thus (13) is ruled out as a failure of ellipsis licensing based on (12) – in particular, for failing the contrast condition.

2.4 Prospects

In sum, the sameness inherent to triviality reveals the explanatory role that contrast plays in ellipsis licensing as a crucial component of proper alternative-hood. At the outset, it was surprising that ellipsis should fail in circumstances of complete identity. From the focus-based perspective, this surprise dissipates. A focus-based theory of ellipsis comprising both focus membership and contrast correctly rules out ellipsis in tautologous conditionals.

In general, strengthening focus membership with contrast prevents the focus-based condition on ellipsis from being satisfied in the absence of contrastive focus. As we have seen, focus membership is satisfied by equality. Requiring contrast disallows the situation presented abstractly in (14), where ⟦A⟧, by virtue of having the same ordinary meaning as ⟦E⟧, is the trivial member of a degenerate singleton F(E):

(14) ✗ $[\![A]\!] = [\![E]\!]$ $F(E) = \{ [\![E]\!] \}$ $[\![A]\!] \in F(E)$

Overall, rather than mere alternative-hood, which tolerates equality, ellipsis requires proper alternative-hood, which includes contrast.

Significantly, the ungrammaticality of ellipsis in tautologous conditionals shows that the contrast requirement on ellipsis is not just an epiphenomenon of the way discourses work. As Jacobson (2019b: 619) discusses, utterances generally provide new information. At the same time, ellipsis must be recoverable from an antecedent. It is natural, therefore, that an elliptical utterance will contrast with its antecedent; otherwise, the speaker would just be repeating themselves. However, speakers do sometimes repeat themselves, as is the case in tautologous conditionals. And here, despite there being no discourse requirement for contrast, ellipsis is still impossible without it. Thus the requirement for contrast is inherent to ellipsis.

The rest of the paper defends the conclusion that VPE requires contrast. Other potential explanations for the central empirical point – that ellipsis is ungrammatical in tautologous conditionals – are unsuccessful. Section 3 argues against an explanation in terms of triviality. The data advanced to do so begin to catalogue what counts for contrast in ellipsis, leading to the discussion of intensionality contrasts in section 4. Section 5 argues against a second alternative explanation in terms of matching form. Finally, section 6 discusses the conflict between contrast and Takahashi & Fox's (2005) account of MaxElide effects, which makes crucial use of alternative-hood's tolerance of equality.

3 Triviality and contrast

The focus-based theory of the previous section attributed the ungrammaticality of ellipsis in tautologous conditionals to a problem with ellipsis. This section argues against the idea that the problem is the tautology.

Faced with the surprising failure of complete identity to license ellipsis in (1), one might claim that the ungrammaticality results from a faulty interaction between triviality and ellipsis.[7] Indeed, trivial truth conditions are regularly invoked to explain ungrammaticality; for example, the definiteness effect in *there*-existential sentences (Barwise & Cooper 1981), or the selection properties of connected exceptive phrases (von Fintel 1993).[8] However, while ellipsis is ungrammatical in tautologous conditionals, the grammaticality of ellipsis can be doubly dissociated from triviality. On the one hand, ellipsis is fine in trivial sentences

[7]See Stockwell (2018, 2020: ch.2) for an attempt to formalise this idea in terms of Gajewski's (2002, 2009) theory of L(ogical)-triviality.

[8]For extensive references to empirically wide-ranging uses of triviality as an explanation for ungrammaticality, see Gajewski (2002, 2009), Chierchia (2013: 43-54), and Abrusan (2014: ch.6).

involving negation (section 3.1), and even in tautologous conditionals in certain discourses (section 3.2). On the other hand, ellipsis fails in a certain kind of non-trivial sentences – namely, redundant free relatives – due to apparent contrast failure (section 3.3). In arguing against triviality as the explanation for the ungrammaticality of ellipsis in tautologous conditionals, this section begins a collection of what counts for contrast in ellipsis, leading into the discussion of contrast and intensionality in section 4.

3.1 Negation

While ellipsis is ungrammatical in tautologous conditionals, it is grammatical in other trivial sentences involving negation. For example, the contradictory conjunction in (15) and the tautologous disjunction in (16) are good, whether fully pronounced (a) or elliptical (b):[9]

(15) a. John$_1$ is wrong and he$_1$ isn't wrong.

b. John$_1$ is wrong and he$_1$ isn't ~~wrong~~.

(16) a. Either John$_1$ is wrong, or he$_1$ isn't wrong.

b. Either John$_1$ is wrong, or he$_1$ isn't ~~wrong~~.

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[9]Examples of the form in (15b) are often given in discussions of the (un)grammaticality 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.

Thus ellipsis is not incompatible with triviality. Instead, the proper alternative-hood theory of ellipsis from the previous section correctly predicts both (15) and (16) to be grammatical, as in (17). The opposition of a positive antecedent and a negative clause containing ellipsis satisfies the contrast condition:

(17)

E = he_1 isn't_F wrong	A = John_1 is wrong
$[\![\text{E}]\!]$= not-wrong'(j)	$[\![\text{A}]\!]$ = wrong'(j)
F(E) = { wrong'(j), not-wrong'(j) }	$[\![\text{A}]\!] \in$ F(E) and $[\![\text{A}]\!] \neq [\![\text{E}]\!]$

The elided constituent *wrong* is contained in the 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 (13). But, unlike with (1b), the ordinary meanings of A and E are distinct: A is positive, whereas E contains sentential negation. Hence the contrast condition is also satisfied, and (15) and (16) are correctly predicted to be grammatical.

We thus find that negation counts for contrast in ellipsis licensing. In the next subsection, we find the same is true of polar question antecedents.

3.2 Polar questions

The overarching aim of this section is to see whether triviality could be responsible for the ungrammaticality of ellipsis in tautologous conditionals. A second point against this idea is that such ellipsis is not always ungrammatical. The foregoing has considered the status of ellipsis in tautologous conditionals in isolation, with the *if*-clause as the only available antecedent. This subsection considers elliptical tautologous conditionals embedded in richer discourses. The very same sentence as (1b) is good when provided with a polar question antecedent in (18):

(18) Q: Is John$_1$ wrong?

a. R: If John$_1$ is wrong, then he$_1$ is wrong.

b. R': If John$_1$ is wrong, then he$_1$ is ~~wrong~~.

Thus ellipsis is not incompatible with triviality, even in tautologous conditionals. The proper alternative-hood theory correctly predicts the exchange in (18) to be good, despite the (b) response being the same as (1b). While ellipsis within the tautologous conditional falls to contrast failure, the problem is avoided by sourcing the antecedent from the polar question rather than the *if*-clause. Following Hamblin (1973), we take questions to denote the set of their possible answers. Set-denoting antecedents invoke Rooth's (1992a) set case of focus, as applied to ellipsis in (19). The set denoted by A must be a subset of the focus semantic value of E:

(19) *Ellipsis as subset-hood*

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

$[\![A]\!] \subseteq F(E)$ – the subset condition

Ellipsis is licensed in (18b) based on the subset condition of (19) as in (20):

(20)

E = he$_1$ is$_F$ wrong	A = Is John$_1$ wrong?
$[\![E]\!]$= wrong'(j)	$[\![A]\!]$ = { wrong'(j), not-wrong'(j) }
F(E) = { wrong'(j), not-wrong'(j) }	$[\![A]\!] \subseteq F(E)$

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 (13). Instead, the polar question is taken as antecedent, subjecting ellipsis to the subset condition. The polar question denotes the set of its possible answers: *John is wrong*, *John is not wrong*. Since this set is the same as the focus value of E, the subset condition is met and ellipsis is licensed.[10]

[10]In one sense, the subset condition circumvents the contrast component of proper

We can be sure that the antecedent is indeed the question rather than the *if*-clause in (18b) based on (21)-(23). First, (21) replicates the pattern of (18). In response to a question about the same thing, a tautologous conditional (a) can be elliptical (b). The continuation in (c) might help to contextualise the response:

(21) Q: Does Mary$_2$ like apples?

a. R: If Mary$_2$ likes apples, then she$_2$ likes apples.

b. R': If Mary$_2$ likes apples, then she$_2$ does ~~like apples~~.

c. (Deal with it!)

To confirm that the antecedent for ellipsis is indeed the question rather than the *if*-clause in (21), we can compare (22) with (23). In (22), the same question about apples is rejoindered by a contingent conditional in (a). Ellipsis is possible in (b), drawing on the question as antecedent:

(22) Q: Does Mary$_2$ like apples?

a. R: If Mary$_2$ likes pears, then she$_2$ likes apples.

b. R': If Mary$_2$ likes pears, then she$_2$ does ~~like apples~~.

c. (How could she$_2$ like one and not the other?)

In (23), the question about apples is rejoindered by a tautologous conditional about pears in (a). This time, however, ellipsis is not possible in (b):

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alternative-hood. In another sense, contrast obtains between ⟦E⟧ and a member of ⟦A⟧. In (20), recalling the role played by negation in the previous subsection, this would be the negative member of ⟦A⟧. See Rooth (1992a: 90, 93) for discussion.

(23) Q: Does Mary$_2$ like apples?

a. R: If Mary$_2$ likes pears, then she$_2$ likes pears.

b. R': *If Mary$_2$ likes pears, then she$_2$ does ~~like pears~~.

c. (Leave her$_2$ alone! Stop getting at her$_2$ to try new things!)

In sum, it is possible for ellipsis to draw on a question as antecedent in (22), but not its own *if*-clause in (23). This difference confirms that, when successful in (21b) and (18b), ellipsis is drawing on the question as antecedent. Contrast failure prevents the *if*-clause from serving as antecedent, as would be needed in (23).[11]

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[11]It may be possible for a very rich discourse context to provide an antecedent for ellipsis in a tautologous conditional. Pauline Jacobson (p.c.) hazards (i), adding that, while insecure about the judgment, ellipsis doesn't seem horrendous:

(i) My husband Michael and I are always trying to think of ways to keep our husky Mitka from digging out of the yard. We talk about bricking up the area around the fence, and Michael goes to Home Depot and returns with a bunch of bricks. We proceed to line the fence with these. After that, I turn to Michael and say:

a. Well look, if he still manages to dig out of the yard. he just does – we've done our best!

b. Well look, if he's still going to dig out of the yard, he's just going to – what more can we do?

To the extent that ellipsis is possible in (i), the antecedent is provided by the discourse. In this sense, discourse plays the role of the question antecedents in (21b) and (18b). Indeed, ellipsis is elsewhere possible in the absence of an overt linguistic antecedent; see Miller & Pullum (2013) for discussion. The question then arises as to the nature of this discourse antecedent. On the one hand, the discourse may conjure a syntactic object; e.g., for (ia), the question *Will Mitka still manage to dig out of the yard?* On the other hand, the discourse

Further, the focus-based theory straightforwardly predicts ellipsis to be possible in both clauses of a conditional at once:

(24) If he_1 is < >, he_1 is < >.

Though it need not, (24) can have a trivial interpretation where both ellipses are resolved via the same antecedent, as in (25):[12]

(25) Q: Is $John_1$ wrong? R: If he_1 is ~~wrong~~, he_1 is ~~wrong~~.

The focus-based theory correctly predicts such cases of 'double ellipsis' to be good. In (25), each ellipsis in R is separately and successfully licensed by the subset condition, in just the same way as for (18) in (20) above.[13]

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may provide a salient model-theoretic object of the appropriate meaning. In any case, the point stands that the antecedent for ellipsis cannot come from the *if*-clause, since that would result in contrast failure.

[12]See Clifton Jr. & Frazier (2010: 291) for some speculation as to what makes double ellipsis in conditionals especially easy to process.

[13]There is more to say about the status of double ellipsis in (24) as opposed to single ellipsis in (1b) (**If John is wrong, then he is*). While (24) needs to be provided with an antecedent before it can be interpreted, as in (25), it can also be judged acceptable in isolation. This 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. (1b) is judged unacceptable in isolation despite that fact that there are discourses where it is good – viz. (18). That is, whereas we tolerate (24) absent an antecedent, it seems that the presence of a potential but ultimately unusable antecedent in the *if*-clause in (1b) precludes such deference to discourse.

The data in (i)-(iii) replicate the pattern among (24), (18) and (1b) for focus:

In sum, tautologous conditionals can be elliptical when the antecedent is a polar question. The focus-based theory correctly predicts this. Polar questions circumvent the problem with sourcing the antecedent from the *if*-clause – namely, contrast failure. A theory based on triviality, on the other hand, would struggle to account for why ellipsis usually isn't, but other times is possible in the same kind of trivial sentence. Furthermore, such a theory would be unable to account for the failure of ellipsis in the kind of non-trivial sentences discussed in the next subsection.

3.3 Redundant free relatives

So far, this section has considered ellipsis and contrast in trivial sentences. This subsection shows that contrast failure can be observed in non-trivial sentences of the kind in (26). While the fully pronounced (a) is grammatical, ellipsis (b) is not possible in redundant free relatives

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(i) Bill is AMERICAN$_F$.

(ii) John is Canadian. Bill is AMERICAN$_F$.

(iii) ?? John is American. Bill is AMERICAN$_F$.

To begin, (i) behaves like double ellipsis in (24): 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. Next, (ii) is like single ellipsis in (18): the first clause provides a legitimate antecedent for the focus/ellipsis in the second. Finally, (iii) is like (1b): there is a potential but ultimately unusable, non-contrasting antecedent for the focus/ellipsis, and the sentence is judged unacceptable.

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

(cf. Horn 1981: 326):[14]

(26) a. John_j eats what he_j eats.

b. * John_j eats what he_j does ~~eat~~.

The free relative clause *what he eats* is redundant; yet to the extent that the sentence entails that John ate something, it is not trivial. That places (26) beyond the purview of a theory based on triviality. The proper alternative-hood theory, on the other hand, successfully rules out ellipsis in (26b) via the contrast condition, as in (27). Regardless of how the free relative DP takes scope to resolve antecedent containment,[15] and regardless of the placement of F-marking, ellipsis is ruled out as a contrast failure, since A and E have the same meaning:

(27) * John_1 eats what he_1 does ~~eat~~.

$[_{\text{DP}}$ what 3 he_1 does eat $t_3]$ 2 John_1 eats t_2.

E = 3 he_1 does eat t_3 A = 2 John_1 eats t_2

$[\![\text{A}]\!] = [\![\text{E}]\!] = \lambda x.\ \text{eats'}(x)(j)$

3.4 Summary

Overall, this section has shown that it would not be tenable to account for the ungrammaticality of ellipsis in tautologous conditionals on the basis of triviality. Ellipsis is fine in other trivial

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[14]Recalling note 2, the best available but bizarre parse for (26b) takes *does* to be 'main verb' *do*. Recall also note 3 regarding the stonewalling meaning. We return to redundant free relatives like (26) in view of intensionality in the next section, including appending a *because*-clause in (33b).

[15]To avoid antecedent containment, A needs to exclude the elliptical free relative DP. To maintain alternative-hood 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 higher than *John*.

sentences involving negation, and in tautologous conditionals themselves when they have a polar question antecedent. At the same time, ellipsis is bad in the non-trivial case of redundant free relatives.

The next section considers sentences that are non-trivial by virtue of intensionality. The focus-based theory of ellipsis as proper alternative-hood accounts for the intensionality data, just as it has the data in this section. Like negation and questions, we will see that intensionality counts for contrast in ellipsis.

4 Intensionality and contrast

This section considers how the status of ellipsis changes when redundant free relatives and tautologous conditionals are embedded. The focus-based theory of ellipsis can account for intensionality contrasts in terms of focus (Hardt & Romero 2004) on a VERUM operator (Romero & Han 2004), an approach which naturally delimits the class of licensing predicates.

Recall redundant free relatives from (26) in the previous section. While the fully pronounced (a) was perfectly grammatical, (b) with ellipsis was not. That difference does not persist in (28), however. Embedding under *Mary believes* renders ellipsis grammatical in (b):

(28) a. Mary believes that John eats what he eats.

b. Mary believes that John eats what he does ~~eat~~.

On our focus-based theory of ellipsis so far, (28b) would receive the same treatment as (26b), namely (29):[16]

(29) Mary believes that John$_1$ eats what he$_1$ does ~~eat~~.

Mary believes [[$_{\text{DP}}$ what 3 he$_1$ does eat t_3] 2 John$_1$ eats t_2].

[16]In (29) and subsequently, w is any possible world.

A = 2 John$_1$ eats t_2 E = 3 he$_1$ does eat t_3

$[\![A]\!]^w = [\![E]\!]^w = \lambda x.eat'_w(x)(j)$

Thus (28b) is incorrectly predicted to be ungrammatical as a contrast failure.

The observation that ellipsis is ungrammatical in (26b), but fine in environments like (28b), is due to Horn (1981: 326). Additionally – and, as we will argue, relatedly – he notices a difference in meaning within (28). In (a), the intensional predicate introduces its usual *de re-de dicto* ambiguity. The free relative DP can be read *de re*, equating what John actually eats with what Mary believes him to eat, thus asserting that Mary is correct. In addition, the free relative DP can be read *de dicto*, whereby Mary believes the tautology that what John eats is what he eats. This ambiguity does not persist in (b), however. With ellipsis, the free relative DP must be read *de re*; the tautological *de dicto* reading is unavailable.

We can already explain why (28b) 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*. Hence contrast failure will result, just as in (29). We can explain the rest of Horn's observations by making the ellipsis licensing calculations sensitive to intensionality. Notice that, in addition to being unambiguous, (28b) 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 licensing calculations for tautologous conditionals above in (13) *et seq*. (see also note 6). But stress on an auxiliary can instead signal focus not on polarity, but intensionality. Intuitively, contrast holds in (28b) between what Mary believes and the actual state of affairs.

This intuition can be implemented in terms of verum focus (cf. Höhle 1992).[17] Formally,

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[17]"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, ¬p; in the foregoing, this was termed 'polar

Romero & Han (2004) introduce VERUM, meaning roughly 'it is for sure that'.[18] Focus on VERUM contributes alternatives to the proposition being true. The proposition is instead merely possible, or someone expects or wants or hopes it to be true or not true, etc., as sketched in (30) (Hardt & Romero 2004: 405, ex. 97):

(30) $F(VERUM_F\ p) = \{$it is for sure true that p, it is possible that p, it is hoped that p, it is doubted that p, it is wanted that p, it is expected that p, ..., John expects that p, John hopes that p, Sam expects that p, ..., it is for sure true that ¬p, it is possible that ¬p, it is hoped that ¬p, it is doubted that ¬p, it is wanted that ¬p, it is expected that ¬p,

---

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, we embrace aspects of both FAT and LOT. 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.

[18]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 assume in w'' to be true (Stalnaker 1978):

(i) $[\![VERUM_i]\!]^{g x/i} = [\![really_i]\!]^{g x/i} =$

$\lambda p_{st}\ \lambda w.\forall w' \in Epi_x(w)\ [\forall w'' \in Conv_x(w')\ [\ p \in CG_{w''}\ ]\ ]$

..., John expects that ¬p, John hopes that ¬p, Sam expects that ¬p, ... }

To illustrate, focus membership is satisfied via VERUM in (31) (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:

(31) Sue_4 expected $John_1$ to win, and he_1 DID ~~win~~.

ε = win

A = Sue expected John to win $\quad [\![A]\!] = \lambda w.\ expect'_w(\lambda w'.\ win'_{w'}(j))(s)$

$E = VERUM_F$ John win $\quad [\![E]\!] = \lambda w.\ for\text{-}sure'_w(\lambda w'.\ win'_{w'}(j))$

F(E) = {it is for sure true that John won, it is possible that John won, ...,

Mary wanted that John won, Sue expected that John won, ... }

$[\![A]\!] \in F(E)$ and $[\![A]\!] \neq [\![E]\!]$

Armed with VERUM, we can now account for the grammaticality of ellipsis in (28b) on its *de re* interpretation. The sentence, repeated with obligatory stress on *DOES* indicated, satisfies the proper alternative-hood requirement on ellipsis as in (32):

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

[what 4 VERUM he_1 ~~eat t_4~~] 3 Mary believes that $John_1$ eats t_3

ε = eat t_4

A = 3 Mary believes that John eats t_3

$[\![A]\!] = \lambda x.\lambda w.\ believe'_w(\lambda w'.\ eat'_{w'}(x)(j))(m)$

$E = 4\ VERUM_F$ John eat t_4

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

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

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

$[\![A]\!] \in F(E)$ and $[\![A]\!] \neq [\![E]\!]$

Focus membership holds in (32) by virtue of Mary's beliefs about what John eats being an alternative to what he actually eats. At the same time, contrast obtains between Mary's beliefs and actuality.[19]

Further to embedding under an intensional verb like *believe* in (28b), ellipsis is grammatical in the redundant free relatives in (33) 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'):

(33) 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.

These considerations apply equally to tautologous conditionals in (34). Compared with (b), intensional embedding renders ellipsis grammatical in (d), based on the contrast between

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[19]The paradigm of (26) and (28) is reminiscent of 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, the theory here predicts the *de dicto* reading to be just as ungrammatical as in (28b), for the reason in (29); yet Horn (1981) reports it to be available.

The status of (i) raises issues about the structure of comparatives that are beyond the scope of this paper. In particular, the obligatoriness of comparative deletion (Bresnan 1973), as in (ii), could be complicating matters:

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

what John thinks about his silliness, and his correctness in fact:[20]

(34) a. If John$_j$ is silly, then he$_j$ is silly.

b. * If John$_j$ is silly, then he$_j$ is ~~silly~~.

c. If John$_j$ thinks he is silly, then he$_j$ is silly.

d. If John$_j$ thinks he is silly, then he$_j$ IS ~~silly~~.

While intensionality and VERUM can 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.[21] It remains so if we model *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 (34b), there is no room for contrast to arise.

The second point to consider regarding the continuing ungrammaticality of (34b) is the potential role of VERUM. As shown in (35), 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 (35) – E contains VERUM, but A does not:

(35) * If John$_1$ is silly, then he$_1$ IS$_F$ ~~silly~~. ε = silly

E = VERUM$_F$ he$_1$ is silly A = John$_1$ is silly

$[\![E]\!] = \lambda w.\ \text{for-sure'}_w(\lambda w'.\ \text{silly'}_{w'}(j))$ $[\![A]\!] = \lambda w.\ \text{silly'}_w(j)$

$[\![A]\!] \neq [\![E]\!]$, **but** $[\![A]\!] \notin F(E)$

[20]The paradigm in (34) uses the predicate *silly* rather than the familiar *wrong* to avoid expressing something unnecessarily philosophical with (c) and (d).

[21]See Mandelkern (2019) for defence of the logical truth of *If p, then p*.

However, (35) continues to predict (34b) to be ungrammatical due to a focus membership failure: plain p is not a member of the alternative set F(VERUM$_F$ p) from (30).

In this vein, proper alternative-hood in concert with VERUM can explain why only intensional embedding rescues ellipsis in redundant free relatives and tautologous conditionals. Embedding under an aspectual verb like *start* leaves ellipsis ungrammatical in (36) and (37):

(36) a. If John started to eat, then he ate.

b. * If John started to eat, then he DID ~~eat~~.

(37) a. John is starting to eat what he eats.

b. * John is starting to eat what he DOES ~~eat~~.

While a detailed analysis of aspectual verbs is beyond the scope of this paper, it is reasonable to suppose that they are not intensional. For instance, *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 possibilities and desires. Non-intensional predicates, therefore, are not in the set of alternatives to VERUM. That leaves no way to license ellipsis in (36) and (37). Taking A to be the main clause results in focus membership failure, since *(John) start* is not a member of F(VERUM). Taking A to be the embedded clause, meanwhile, will result in contrast failure.

Notice that the failure of focus membership in (36) and (37) is an issue quite apart from redundant free relatives, triviality, or ellipsis. Focus (and ellipsis) in (38) would be ruled out along similar lines:

(38) * John$_1$ started to work, and he$_1$ DID (work).

In sum, contrast failures with ellipsis in redundant free relatives and tautologous conditionals can be rescued by contrasts involving intensionality.[22] The focus-based theory

[22]For Pauline Jacobson (p.c.), ellipsis in tautologous conditionals improves with embedding

identifies intensional predicates as a natural class as a straightforward consequence of VERUM and its focus alternatives.

5 Matching

The discussion so far has characterised (1) based on its trivial truth conditions as a 'tautologous conditional':

(1) a. If John$_j$ is wrong, then he$_j$ is wrong.

b. * If John$_j$ is wrong, then he$_j$ is ~~wrong~~.

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under *want* or negation, even where they do not contribute to contrasting intensionality or polarity, as in (i):

(i) [Two parents are talking about their daughter who wants to drop out of college and move to Banff:]

a. Look, if she wants to move to Banff, she wants to ~~move to Banff~~. Whatdaya gonna do?

b. Look, if she doesn't finish college, she doesn't ~~finish college~~. Whatdaya gonna do?

While the examples in (i) seem worse than, e.g., the VERUM-based contrast in (34d), they do seem better than (1b).

For some reason, finite embedding does not have the same ameliorating effect in (ii):

(ii) * If she thinks college sucks, she thinks it does ~~suck~~. Whatdaya gonna do?

As for negation, it may be that it encourages the hearer to conjure a preceding polar question, with ellipsis licensing then proceeding as described in section 3.2. Recall also note 11 regarding the syntactic vs. semantic status of such an antecedent.

Section 3 dismissed the idea that triviality is the problem with ellipsis in (b). That left standing the idea that (b) fails the contrast component of a focus-based condition on ellipsis.

From another perspective, (1) might be characterised in terms of matching form rather than matching meaning. On this view, the characteristic 'deal with it!' rhetorical force of (1) arises from the exact match between the form of the *if*-clause and the consequent. Viewing (1) as a 'matching conditional' gives rise to the idea that ellipsis is bad in (b) due to mismatching form – the fully pronounced *if*-clause fails to match the elliptical consequent.

Pauline Jacobson (p.c.) raises this possibility based on (39). The paradigm manipulates the order of a verb particle *up* and its object *the answer*. The conditional is well-formed when the order matches across *if*-clause and consequent: object-particle in (a), and particle-object in (b). The mismatched orders in (c) and (d), however, are ill-formed:

(39) [In the context of someone who might cheat:]

a. If she looks the answer up, she looks the answer up, whatdaya gonna do?

b. If she looks up the answer, she looks up the answer, whatdaya gonna do?

c. ?* If she looks the answer up, she looks up the answer, whatdaya gonna do?

d. ?* If she looks up the answer, she looks the answer up, whatdaya gonna do?

Faced with (39), this section makes two points against the idea that the ungrammaticality of ellipsis in (1) is due to mismatching form.[23]

[23]A third point against matching form might come from situating (39) in a different context. In the given context of someone who might cheat, (a)-(d) are read as attempts to communicate that their cheating doesn't matter, or that nothing can be done about it. The changes in particle-object order in (c)-(d) do not contribute to this communicative aim. Worse, the word order changes are felt to be the main comment, distracting from that communicative aim. In a context where word order is the issue, however, as in (i), the mismatched order becomes acceptable:

First, as Jacobson notes, it cannot be that 'deal with it' conditionals require exactly matching form, since switching between full nominals and pronouns is allowed. In (1), *John* in the *if*-clause becomes *he* in the consequent, and the fully pronounced (a) is fine.[24] As Jacobson shows with (40), pronominalising the object from *if*-clause to consequent is equally fine:

(40) a. Look, if she insults Fred, she insults him, whatdaya gonna do?

b. Look, if he loves the strange dish we were served last night, he loves it. Whatdaya gonna do?

(i) [In the context of a copyeditor querying whether to change the sentence 'Mary looked the answer up':]
(Argh, stop being so pedantic!)
If she looks the answer up, she looks up the answer.
(It amounts to the same thing!)

To be sure, (i) makes a metalinguistic comment on the synonymy of particle-verb orders. To the extent that it also retains the characteristic 'deal with it!' rhetorical force of tautologous conditionals, (i) is a counterexample to the claim that 'deal with it!' conditionals require matching form.

[24]With names in both *if*-clause and consequent, as in (i), we can continue to say something trivial in (a); but (b) with ellipsis is even worse:

(i) a. If John is wrong, then John is wrong.

b. ** If John is wrong, then John is ~~wrong~~.

The further degradation could be due to 'anaphora clash' in the consequent: under-anaphorising with respect to the subject, while at the same time over-anaphorising with illicit, non-contrasting ellipsis.

Second, tautologous conditionals can be elliptical while retaining their 'deal with it!' rhetorical force, given the right antecedent. As we saw in section 3.2, the elliptical (1b) turns from bad to good when ellipsis can draw on a polar question antecedent, as in (18). A similar example is given in (41):

(41) Q: Will Mary$_2$ look the answer up?

a. R: If she$_2$ looks the answer up, she$_2$ looks the answer up.

b. R': If she$_2$ looks the answer up, she$_2$ does ~~look the answer up~~.

c. (There's nothing we can do about it!)

Above, the argument was that ellipsis is in principle compatible with triviality – the elliptical (b) response is just as tautologous as the fully pronounced (a). Here, the same data point can be levelled against exact matching. Absent a polar question antecedent, the mismatch between a fully pronounced *if*-clause and an elliptical consequent is bad. But with a polar question antecedent, the same mismatch is allowed. Thus the fact that tautologous conditionals can be good despite being pronounced differently – fully vs. elliptically – is a point against the idea that they require matching form.[25]

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[25]Beyond tautologous conditionals, matching may well matter in self-conjoined sentences expressing iteration. In (i), repetition must be whole, whether of sentences (a) or verb phrases (c); ellipsis in the corresponding (b) and (d) examples is ungrammatical. Unlike with tautologous conditionals, however, ellipsis remains bad in response to a polar question:

(i) (Did they talk?)

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~~.

In sum, tautologous conditionals do not require an exact match in form across their *if*-clause and consequent. Pronominalisation gave a reason to doubt as much at the outset. Moreover, given the right antecedent, the *if*-clause can be fully pronounced, while the consequent is elliptical.

Overall, contrast failure stands as the best explanation for the ungrammaticality of ellipsis in tautologous conditionals, superior to triviality and matching form. With contrast, we gain an explanation for why ellipsis is ungrammatical in tautologous conditionals. The next section considers what we stand to lose by requiring contrast in ellipsis.

6 Contrast and MaxElide

Research on ellipsis in the vein of focus generally omits the contrast condition. That is, it pursues the consequences of licensing ellipsis based on alternative-hood, subjecting it only to the focus membership condition, as in (7) (e.g. Heim 1997, Rooth 1992b, Fox 1999, Fox 2000: 85, ex. 16, Takahashi & Fox 2005, Drummond 2021):

(7) *Ellipsis as alternative-hood*

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

$[\![A]\!] \in F(E)$

This paper has argued, based on the ungrammaticality of ellipsis in tautologous conditionals and related data, that ellipsis requires proper alternative-hood, incorporating contrast as in (12):

(12) *Ellipsis as proper alternative-hood*

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

i. $[\![A]\!] \in F(E)$; and

ii. $[\![A]\!] \neq [\![E]\!]$

Beyond the extremes of triviality and redundancy, the contrast requirement is difficult to observe. Indeed, we saw in section 2.2 that for a simple case of VPE with contrasting subjects, alternative-hood (7) and proper alternative-hood (12) make the same prediction. For the most part, therefore, omitting the contrast condition and pursuing (7) is quite innocent. As this section shows, however, traditional theories of MaxElide effects are crucially committed to ellipsis as alternative-hood. Their incompatibility with ellipsis as proper alternative-hood conflicts with this paper's argument that VPE requires contrast.

A classic MaxElide effect is illustrated in (42) (Schuyler 2001). From a base sentence like (a), sluicing (b) is grammatical, but VPE (c) is not:

(42) 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 intuition behind almost all analyses of (42) is one of competition: VPE (c) is ungrammatical for losing to sluicing (b).

The standard analysis of MaxElide effects, Takahashi & Fox (2005), is grounded in a focus-based theory of ellipsis. Takahashi & Fox (2005) assume alternative-hood as a necessary condition on ellipsis, along the lines of (7).[26] When there is A-bar movement out of the ellipsis site, as in (42), alternative-hood is achieved only at the clause level, including the binder of the A-bar trace. Any lower and alternative-hood will not go through, due to the unbound traces. To see this, consider the failed attempt at evaluating alternative-hood at the TP level in (43). The LF assumes Quantifier Raising of *something*. 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. By No Meaningless Co-indexing (Heim 1997), the same index cannot accidentally be re-used for two different binders. Since there will be

[26]Cf. Takahashi & Fox (2005: 229, exx. 19, 20).

worlds at which the value of index 1 differs from that of index 2, focus membership fails:

(43) LF: [something$_1$ John ate t_1] but I don't know [what$_2$ he ate t_2]

A = John ate t_1	$[\![A]\!]^g$ = eat'(g(1))(j)
E = he ate t_2	$[\![E]\!]^g$ = eat'(g(2))(j)
$F(E)^g$ = { eat'(g(2))(j) }	$[\![A]\!]^g \notin [\![E]\!]^g$, wherever g(1) ≠ g(2)

Rather, A and E must include the binders for the traces. Ellipsis must therefore be evaluated no lower than the clause level. At the clause level, focus membership goes through for (42) as in (44):

(44)

A = something$_1$ John ate t_1	E = what$_2$ he ate t_2
$[\![A]\!]^g = [\![E]\!]^g$ = λx.eat'(x)(j)	$F(E)^g$ = { λx.eat'(x)(j) }
$[\![A]\!]^g \in F(E)^g$, for any g	

The first conjunct serves as the antecedent A, with the embedded clause of the second conjunct as E. Focus membership is satisfied, since the ordinary and focus values of A and E all now have to do with the same thing; namely, λx.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.

Since (44) satisfies alternative-hood (7), ellipsis is licensed in (42). But without saying more, ellipsis of any size, either sluicing or VPE, is predicted to be possible. In order to account for MaxElide effects, Takahashi & Fox (2005: 229f., ex. 21) supplement (7) with the constraint in (45) (cf. Merchant 2008), terming the choice of A and E the 'Parallelism Domain' (PD):

(45) MaxElide: Elide the biggest deletable constituent reflexively dominated by PD.

Maximal ellipsis in the clause-sized PD of (44) yields sluicing (b) in (42). Hence VPE (c) is ungrammatical for disobeying MaxElide.

The conflict between Takahashi & Fox's (2005) analysis of MaxElide effects and this

paper's argument that VPE requires contrast condition comes in cases like (46). Without A-bar movement, but with clausal embedding, ellipsis is free to be big or small (cf. Takahashi & Fox 2005: 230, ex. 22):

(46) 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~~.

In order to correctly predict that matrix VPE (b) does not out-compete embedded VPE (c) in (46), Takahashi & Fox (2005) make crucial use of alternative-hood's tolerance of equality. Their statement of MaxElide in (45) restricts competition to a particular PD. Back in (42), PD must stretch up to include the binder for the A-bar trace. Absent any A-bar traces in (46), PD can be any size between the embedded VP and the whole sentence. This freedom allows either size of ellipsis to be derived, while respecting MaxElide. Setting PD at or larger than the matrix VP, maximal elision yields matrix VPE (b). Setting PD any smaller than the matrix VP, maximal elision yields embedded VPE (c).

However, there is no contrasting material below the matrix VP: just *John ate cheese* across both sentences. To avoid bad predictions on cases like (46), therefore, it is crucial for Takahashi & Fox (2005) that equality, $[\![A]\!] = [\![E]\!]$, is allowed in ellipsis licensing. They are therefore committed to ellipsis as alternative-hood (7), not proper alternative-hood (12), making for a major point of tension between Takahashi & Fox (2005) and this paper. Their competition-based analysis of MaxElide effects, and those that follow in the vein of alternative-hood (Hartman 2011, Messick & Thoms 2016), are incompatible with the contention that VPE requires contrast.

Fortunately, there are other promising proposals to account for the paradigm in (42) that are compatible with subjecting VPE to a contrast condition. For one, Jacobson (2019a,b) derives (42) from competition in terms of semantic rather than syntactic size: 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; roughly, for example, *x eat cheese*. With A-bar movement out of VP as in (42), however, VPE involves ellipsis of type ⟨e,⟨e,t⟩⟩ – the moved constituent is yet to be resolved, in addition to the subject; e.g. *x eat y*. Sluicing, meanwhile, involves ellipsis of type ⟨e,t⟩ – since the subject is included in the ellipsis, only the sluicing remnant remains to be resolved; e.g. *John eat y*. Principles of speaker-hearer cooperativeness prefer lower typed ellipsis, which is easier to recover, when the message would be the same. Hence in (42), sluicing (b) of type ⟨e,t⟩ is preferred to VPE (c) of type ⟨e,⟨e,t⟩⟩. A challenge for this account is why VPE is outright unacceptable, rather than pragmatically marked. Utterances that violate Gricean principles usually give rise not to unacceptability, but implicatures.

For another option, it may prove possible to double down on contrast as the explanatory factor behind MaxElide effects. Griffiths (2019) charts this course, proposing that VPE in (42c) is ruled out on its own terms, without reference to competition or sluicing,[27] as a contrast failure. After all, the embedded clauses in (42) amount to the same thing; roughly, *John likes x*. This approach makes a positive case of (47). For competition theories, focus blocks sluicing, leaving VPE to win by default. From the perspective of contrast, on the other hand, the opposition of John and Mary satisfies proper alternative-hood:

(47) I know what JOHN will eat *t*, and I know what MARY will ~~eat *t*~~.

The central challenge for a contrast-based account of MaxElide effects is that contrast helps, until it doesn't. Ellipsis is ungrammatical with contrast above and not below the c-command domain of the extracted wh-phrase (Schuyler 2001), as in (48):

(48) * BETH knows what John$_1$ will eat *t*, and CAROL knows what he$_1$ will ~~eat *t*~~, too.

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[27]Griffiths (2019) assumes that sluicing (42b), as opposed to VPE (42c), is subject to a separate Question-Under-Discussion based licensing condition requiring semantic identity between questions (Barros 2014); cf. the subset condition in (19).

Griffiths (2019) attempts to derive (48) from the incompatibility of predicate abstraction and alternative semantics (Rooth 1985), but Charlow (2021) shows this is untenable. Still, the spirit of accounting for (42) in terms of contrast failure rather than competition bodes well; not only for defusing the tension between contrast and the traditional competition analyses, but for improving upon them.

Overall, while subjecting ellipsis to a contrast requirement conflicts with the standard analysis of MaxElide effects (Takahashi & Fox 2005; cf. Hartman 2011, Messick & Thoms 2016), contrast is one (Griffiths 2019) among the potential alternative explanations (cf. Jacobson 2019a,b) for them.

7 Conclusion

This paper has argued that VPE requires contrast. The starting observation was that ellipsis is ungrammatical in tautologous conditionals. This observation was surprising given the centrality of 'identity' in theories of ellipsis licensing. This surprise dissipates from the perspective of a focus-based theory of ellipsis (Rooth 1992b) that crucially incorporates contrast (Rooth 1992a). Treating ellipsis as requiring proper alternative-hood accounts for the ungrammaticality of ellipsis in tautologous conditionals better than alternative explanations in terms of triviality or matching form. Showing as much revealed that negation, questions, and intensionality count for contrast in ellipsis. Finally, while contrast is incompatible with competition and alternative-hood based accounts of MaxElide effects (Takahashi & Fox 2005), other potential explanations are available (Jacobson 2019a,b); among them, contrast itself (Griffiths 2019).

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