

# Saving FACE: Fragment answers, copy theory, and radical trace conversion\*

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## 1. Introduction

Fragment answers are non-sentential constituents that function as complete conversational moves, as in the exchange in (1). A central question in the literature regarding such answers is how they come to convey a proposition; in the case of (1A), presumably, the proposition that Jill is on the committee. Are they full clauses that have undergone ellipsis, or genuine sub-sentential expressions that are interpreted as propositions by other means?

- (1)    **Q:** Which linguist is on the committee?        **A:** Jill.

Jacobson (2016) presents an observation that is argued to bear directly on this question. That is the observation that certain felicity conditions on fragment answers to *which*-questions do not apply to full clausal answers. To see this, consider the contrast in (2).

- (2)    **Scenario:** You are a linguist assigned to a university-wide committee. Your mother wants to know whether any of your friends are members too, and asks “*Which other linguist is on the committee?*” as a way of figuring that out. You do not know whether other linguists are on the committee, but Jill, your philosopher friend whom your mother knows well, is. Knowing your mother, you understand she only really cares about whether you will have a friend with you. You thus respond as follows:
- a.    Jill is on it, but (of course) she is a philosopher.
  - b.    Jill is, but (of course) she is a philosopher.
  - c.    #Jill, but (of course) she is a philosopher.        (adapted from Jacobson 2016)

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While the overtly clausal answer in (2a) and its VP-ellipsis (henceforth, VPE) counterpart in (2b) are felicitous responses to the overtly asked question in (3). The fragment in (2c) is not. The generalization that Jacobson draws from this contrast is stated in (3).<sup>1</sup>

- (3) **Jacobson's generalization:** A fragment answer to a *which*-NP question must denote  $x$  s.t.,  $x \in \llbracket \text{NP} \rrbracket$ . (Hence, (2c) is felicitous in (2) only if Jill is a linguist.)

Two remarks about the data: First, none of the answers in (2) address the question that was overtly asked. Presumably, they are not aimed at addressing that question at all. Rather, they are what Jacobson calls *best-I-can-do* responses: attempts by an addressee who does not know the answer to a given question to nevertheless be cooperative, by providing information relevant to some other question, which they assume would be of interest to a speaker who asked the question she did. Such responses are natural with what is known as the fall-rise intonation, and indeed the felicitous answers in (2a-b) seem to favor this intonation (or the word “*well...*” before them; also an indication of a *best-I-can-do* response). The fragment in (2c) cannot be used in this way.

Second, Jacobson's judgment is reported as a categorical one, and we can replicate an equally strong judgment in our own language (Hebrew). We have, however, encountered some variation, with several English speakers reporting that (2a-c) are all acceptable-if-somewhat-uncooperative responses to the question. The variation may be due to an interpretation of these answers as *corrective* rather than as *best-I-can-do* responses, effectively conveying to the person who posed the question: “*You wrongly think that a linguist is on the committee, and you want to know who she is; I am telling you that whoever you have in mind is Jill, but she is actually a philosopher.*” And, as discussed by Lipták (2020), some speakers more readily accept corrective fragments. Our use of “*of course*” in (2) is intended to rule out a corrective interpretation, by indicating that Jill not being a linguist is part of the conversational common ground, and hence that no correction is called for. We later provide further cases in which a corrective interpretation is independently excluded, and the contrast in (2) re-emerges even for speakers who accept (2c).

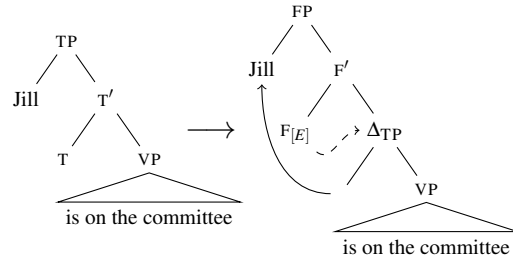
Why is (2c) infelicitous as a response to the question in (2)? Or, more generally, what enforces the “special relationship” between a fragment and its preceding question—which requires that the fragment denote an element in the *which*-phrase's restrictor—and why are the corresponding elements in overtly clausal answers not committed to that relationship? The question is especially challenging for a popular analysis of **F**ragments as **C**lausal **E**llipsis, or **FACE**, going back at least to Morgan (1973), and comprehensively defended by Merchant (2005), whose theory we present here (in broad strokes).<sup>2</sup> According to FACE, the fragment in (2c) is derived from the full clause in (2a) via movement of the fragment to a left-peripheral position, followed by ellipsis of the TP that the fragment vacated. This is shown in (4a), where “*Jill*” moves to the specifier position of a **F**(ocus) phrase whose head **F** has a silencing [E]-feature, which then triggers deletion of its sister as long as the

<sup>1</sup>The generalization is actually more complicated than that, given the availability of fragment answers consisting of generalized quantifiers, but we set those aside for simplicity.

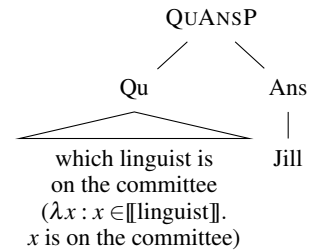
<sup>2</sup>See Merchant 2005 for further references, and Thoms 2016 for an overview and discussion.

deletion site and a linguistic antecedent are sufficiently similar. The result is the deletion of everything but the fragment itself (indicated hereafter by  $\Delta$  on the elided constituent).

(4) a. The FACE analysis:



b. Jacobson's analysis:



The benefits of FACE are well known. Most notably, it explains why fragments appear to be morphosyntactically connected to their hypothesized “original position” inside a clause, and seem to obey constraints on movement.<sup>3</sup> Furthermore, FACE unifies fragments with VP ellipsis and sluicing as instances of a single phenomenon: phonological deletion under a recoverability condition, enforced by an [E]-feature on a syntactic head.

But Jacobson's observation is difficult to account for within FACE: If the sole factors distinguishing the infelicitous fragment in (2c) from the felicitous full clause in (2a) are movement and ellipsis, proponents of FACE would have to *derive* the pattern Jacobson observes from the properties of movement and/or ellipsis. Otherwise, specific constraints distinguishing fragments from other instances of ellipsis like VPE would have to be stipulated, undermining the unifying power of FACE. The problem is, of course, that it is unclear what properties of movement and/or ellipsis can do the job.

Jacobson's own conclusion is that FACE must be given up. Instead, she argues that fragments are non-sentential elements that are syntactic arguments of their preceding question. The question itself is assumed to denote a partial function, defined only for elements in the extension of the *which*-phrase's restrictor, as shown in (4b), and since the fragment is its argument, it obligatorily inherits its presuppositions. Clausal answers, by contrast, are simply not arguments of questions. Thus, the *syntax* itself creates a special relationship between a fragment and its preceding question. On the other hand, as we will show, others in the literature who (implicitly or explicitly) adopt FACE, have to give up the theory's unifying power and posit a particular constraint to enforce that special relationship, which does not apply to all instances of ellipsis (Weir 2014, 2018, Agha and Warstadt 2020).

The modest goal of this paper is to illustrate how FACE can be maintained without stipulating that particular constraints target fragment answers but not other instances of ellipsis, and VPE in particular. Like Jacobson, we think the relationship between a fragment and its question should be enforced syntactically; unlike Jacobson, we think this can be made to follow from FACE, and without fragment-specific constraints.

Our contributions are as follows: We argue against previous FACE-compatible accounts of Jacobson's data, showing first that saving FACE by positing a *pragmatic* constraint on

<sup>3</sup>Connectivity effects include Case and Binding connectivity. Movement constraints obeyed to include island constraints and constraints on preposition stranding; cf. Merchant 2005.

fragments, an idea due to Agha and Warstadt 2020, is not only conceptually problematic—as Jacobson argues—but also empirically inadequate. We then show that an alternative syntactic account, due to Weir (2014, 2018), that derives the data from properties of ellipsis, only succeeds if it is committed to a distinct constraint on fragments. We then build on an insight of Weir’s, that recoverability conditions on ellipsis interact nontrivially with the syntactic process of *trace conversion*, in proposing our own account, which modifies our assumptions about trace conversion in a way that derives Jacobson’s data while maintaining a general recoverability condition on all ellipsis operations. The proposed modification to the process of trace conversion, which we call *radical* trace conversion, may seem, well, radical at first glance. However, we show that it is in fact equivalent to the original conception of trace conversion in the basic cases that have motivated it to begin with. Our modification comes apart from it when movement interacts with independent grammatical constraints—in our cases, constraints on ellipsis parallelism.

The paper is organized as follows: Section 2 presents previous FACE-compatible solutions to Jacobson’s puzzle. Section 3 develops our own FACE-compatible account. Section 4 discusses some questions regarding VP-ellipsis. Section 5 concludes.

## 2. Against fragment-specific constraints

Next, we review two FACE-compatible responses to Jacobson’s puzzle that derive the data in (2). We show that one of these, which places a pragmatic use-condition on fragments, actually fails to derive the facts, and that the other syntactic account does derive the facts only at the cost of positing a fragment-specific constraint.

### 2.1 A pragmatic solution

A pragmatic solution to Jacobson’s puzzle, implicit in recent work by Agha and Warstadt (2020), derives the infelicity of (2c) in (2) by appealing to felicity conditions on utterances in discourse. It assumes, as is standard, that discourse is relativized to a context set  $c$  and Question under Discussion (QuD)  $\mathcal{Q}$ , both defined in (5), and that a pragmatic felicity condition requires that any declarative sentence in discourse be *informative* relative to the QuD, with the notion of *informativity* defined along the lines of (6).<sup>4</sup>

- (5) A model of discourse is a pair  $\langle c, \mathcal{Q} \rangle$  s.t.  $c$  is the set of worlds compatible with what’s taken for granted among discourse participants, and  $\mathcal{Q}$  is a partition of this set into non-overlapping, non-empty cells whose union is  $c$ .
- (6) **QuD-Informativity:** A proposition  $p$  is informative given a model  $\langle c, \mathcal{Q} \rangle$  only if  $p$  rules out some answer to  $\mathcal{Q}$ ; i.e., only if  $\exists q \in \mathcal{Q} : q \cap p = \emptyset$ .

Notice that without any special assumptions about the context set, all answers in (2) denote propositions that are uninformative relative to the overtly asked question. The cells

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<sup>4</sup>Agha and Warstadt actually use Jacobson’s data to argue that a different formulation of informativity is required, but our argument goes through under either formulation, which allows us to set this issue aside.

of the partition induced by the question “*Which other linguist is on the committee?*” distinguish worlds according to which linguists are committee members in them. The proposition that Jill is on the committee eliminates none of these cells, since Jill is known not to be a linguist, and nothing in the context ties Jill’s membership in the committee to that of any linguist. If indeed answers must be informative relative to the question that they are used to address, the felicity of the responses in (2a-b) can only be explained by positing that these answers are offered as responses to a QuD that differs from the overtly asked question; e.g., the question whether the addressee will have a friend on the committee, which—as stipulated in the scenario in (2)—is what interests the mother to begin with. All answers in (2a-c) are informative relative to *that* question, as they eliminate its *no*-answer.

A pragmatic approach to Jacobson’s puzzle can thus appeal to a proposal by Agha and Warstadt (2020), according to which while the informativity of non-fragments like (2a-b) may be evaluated relative to a question that was not overtly asked, this is not the case for fragments like (2c); rather, a fragment must be informative relative to the question that overtly precedes it, a requirement that (2c) does not satisfy when Jill is not a linguist.

Jacobson already notes that this kind of explanation for the pattern in (2) is conceptually problematic: According to FACE, the fragment in (2c) denotes the very same proposition as the full(er) clauses in (2a-b). If they only differ in the pragmatic condition governing their use, then that condition must be encoded by *something*; i.e., by some element in the structure of fragments, that is absent from the structure of non-fragments. In other words, the pragmatic approach is a syntactic approach in disguise. Since (2a-b) differ from (2c) only by movement and ellipsis in the latter, if we do not want the special pragmatic condition to be associated with movement (as movement generally does not seem to impose such conditions), the locus of the condition must be whatever brings about ellipsis in (2c): the silencing feature [E]. But this diminishes the unifying force of FACE: whatever brings about ellipsis in (2c) must now differ from whatever brings it about in (2b), where the same pragmatic condition demonstrably does not hold. We are left with (at least) two [E]-features, one of which comes with the pragmatic condition attached.

We add to the conceptual objection an empirical one. The pragmatic approach is sensitive only to *contextual* entailment. Since the notion of *informativity* is defined relative to a partitioned context set, the pragmatic approach cannot distinguish between two answers that denote contextually equivalent propositions. But Jacobson’s generalization *does* distinguish between such answers. To see this, consider the example in (7).

- (7) **Scenario:** Philosopher Jill and Linguist Ann are best friends, who insisted on adding a clause to their contract with the university, requiring that they always be assigned together to the same university-wide committees. You are a linguist, assigned to a particular committee. Your mother—who knows Ann and Jill, and heard about the university’s odd contractual commitments towards them—is worried that you will lack decent company, and asks you: “*Which other linguist is on the committee?*”
- a. Jill is on it (so we can know for sure that Ann is, too).
  - b. Jill is (so we can know for sure that Ann is, too).
  - c. #Jill (so we can know for sure that Ann is, too).

In the given scenario, “*Jill is on the committee*” and “*Ann is on the committee*” denote contextually equivalent propositions: the contractual clause is common ground, so every world in  $c$  in which one of them is on the committee is a world in which the other is too. The proposition denoted by the latter sentence is obviously informative relative to the overtly asked question: it eliminates every cell of the partition in which Ann is not a member. And since the two propositions are contextually equivalent, so is the former.

The pragmatic approach thus fails to predict the infelicity of (7c): the fragment satisfies the special use-condition that the approach imposes on fragments—namely, that they be informative relative to the immediately preceding question—and yet it is infelicitous when Jill is not a linguist.<sup>5</sup> More generally, (7) illustrates that whatever enforces the special relationship between a fragment and its preceding question is sensitive to the identity of the NP restrictor of the *which*-phrase and to the content of the fragment, not just to the proposition the fragment ends up expressing and its role in discourse.<sup>6</sup>

## 2.2 A syntactic solution

Offering an explicit defense of FACE, Weir (2018) derives Jacobson’s data by positing a parallelism condition on clausal ellipsis that is only met by fragments which denote an element in the extension of the NP restrictor of the preceding *which*-phrase. For brevity, we will only introduce the core components of the analysis. Building on Krifka (2006) a.m.o., Weir adopts a *structured meaning* analysis of questions and focus constructions. Greatly simplifying, the question in (2) is taken to denote the pair in (8), consisting of the set of linguists, which the *wh*-phrase ranges over, and a partial function over linguists, true if they are on the committee and false if they are not. Similarly, the fragment denotes the pair in (9), consisting of the denotation of the focused fragment, and a similar partial function defined only for Jill. Finally, the deletion operation that reduces the underlying full clause into the fragment that we hear is subject to the parallelism condition in (10). As a result, ellipsis in (2c) is only licensed if (11) holds, which is the case only if Jill is a linguist.

$$(8) \quad \llbracket \text{Which linguist is on the committee?} \rrbracket = \langle \llbracket \text{linguist} \rrbracket, \lambda x: \text{linguist}(x). \text{on-the-committee}(x) \rangle$$

$$(9) \quad \llbracket \text{Jill}_F \text{ is on the committee} \rrbracket = \langle \text{Jill}, \lambda x: x = \text{Jill}. \text{on-the-committee}(x) \rangle$$

<sup>5</sup>This data controls for the corrective interpretation discussed in Section 1: The speaker is not correcting her mother’s presupposition that a linguist is on the committee; on the contrary, she is confirming it.

<sup>6</sup>Agha and Warstadt (2020) do not propose their constraint on fragments as part of a defense of FACE. Rather, they wish to determine when a sentence can be used to address an implicit, rather than overtly posited, question. Given that in certain question-answer discourses the informativity of the answer may be evaluated relative to a question distinct from the overt one, determining when this is possible is crucial for deciding how we should formulate constraints like informativity in the first place. Agha and Warstadt cite Jacobson’s observation as *evidence* that fragments address the overt question, which makes question-answer pairs in which the answer is a fragment privileged in the debate on the nature of constraints like informativity. We note in Benbaji-Elhadad and Doron 2026 that our argument above against the pragmatic approach shows that Jacobson’s data does not motivate the constraint that Agha and Warstadt posit, and that we have no reason to view question-answer pairs with fragment answers as privileged data.

- (10) **Weir’s parallelism:** Given a question  $Q$  s.t.  $\llbracket Q \rrbracket = \langle X, Y \rangle$ , answer  $A$  s.t.  $\llbracket A \rrbracket = \langle R, Z \rangle$  can be elided (up to the focused phrase) only if  $\forall x : Z(x) \rightarrow Y(x)$ .
- (11)  $\forall x : [x = \text{Jill} \wedge \text{on-the-committee}(x)] \rightarrow [\text{linguist}(x) \wedge \text{on-the-committee}(x)]$

What still requires justification is the choice of denotations for the question and fragment in (8-9): Why assume that they involve the partial functions above? After all, it is precisely because one of these functions is defined only for linguists and the other only for Jill, that demanding that the former hold of any individual of which the latter does (11), effectively commits us to Jill being a linguist. Weir’s critical insight is that this can be made to follow from the copy theory of movement (Chomsky 1995) paired with the operation of trace conversion (Sauerland 1998, Fox 2002). Under the copy theory, movement is the merging of copies and  $\lambda$ -abstractors (12a). Trace conversion replaces the determiner in any lower copy of a moved DP with a definite article (12b), and inserts a variable into the restrictor of every replaced determiner, which is bound by the  $\lambda$ -abstractor introduced by movement (12c). Movement of the *which*-phrase in the question in (2), and of the fragment “*Jill*” in the fragment in (2c), thus both create syntactic nodes that denote the partial functions that Weir uses in the derivation of Jacobson’s facts; cf. (13a-b).

- (12) a. **Merging of copies:**  $[_{DP} D [_{NP}] [\lambda x. [\dots [_{DP} D [_{NP}]]]]]$   
 b. **Determiner replacement:**  $[_{DP} D [_{NP}] [\lambda x. [\dots [_{DP} \text{THE} [_{NP}]]]]]$   
 c. **Variable insertion:**  $[_{DP} D [_{NP}] [\lambda x. [\dots [_{DP} \text{THE} [[[_{NP}] [\lambda y.y = x]]]]]]]$
- (13) a.  $[\text{which linguist } \lambda x. [\text{THE} [\text{linguist } \lambda y.y = x] \text{ is on the committee}]]$   
 b.  $[\text{Jill } \lambda x. [\text{THE} [\text{Jill } \lambda y.y = x] \text{ is on the committee}]]$

Weir’s proposal is superior to the pragmatic account discussed in Section 2.1, as it correctly captures the facts. In particular, in (7) the account predicts the fragment to be bad because the conditions it imposes on the fragment are intentionally designed to have the fragment inherit the presupposition of the *which*-phrase. But this comes at a cost of positing the unique parallelism condition for clausal ellipsis in (10), which is not operative in VPE, as indicated by the fact that an answer with VPE is felicitous in Jacobson’s context. Weir suggests that distinguishing clausal from sub-clausal ellipsis is independently justified, given recent work suggesting that the former is unique in that it takes the QuD itself as antecedent (e.g., AnderBois 2010, Barros 2014, Weir 2014 a.o.).<sup>7</sup> However, if by QuD Weir means a possibly implicit question, rather than the overtly formulated one, then the proposed analysis *fails* to derive Jacobson’s facts: In that case, nothing in principle would prevent us from treating the fragment in (2c) as an answer to an implicit question—say, in (2), the question of which of the addressee’s colleagues is on the committee—and relative to such a question, surely, the fragment satisfies parallelism.<sup>8</sup> In fact, as discussed in Sec-

<sup>7</sup>We thank Kyle Johnson for discussing this point with us.

<sup>8</sup>Since Weir uses structured meanings in defining parallelism, if parallelism is evaluated relative to the QuD, it independently requires that we treat the QuD as an object more complex than a Hamblin-alternative set, so the implicit question we suggest here should be available as an antecedent.



This is, essentially, Karttunen’s (1977) structure for *wh*-questions, coupled with the copy theory and trace conversion, and modified in one significant respect: In addition to the final landing site of the *wh*-phrase, an intermediate position is posited, with an associated  $\lambda$ -abstractor, immediately below the question operator “?”. This landing site will in turn play a role in the evaluation of the parallelism condition on ellipsis.<sup>9</sup>

We adopt the semantic parallelism condition in (16a) (cf. Rooth 1992, Heim 1996, Fox 2000), stated in terms of Roothian focus values, defined in (17), paired with a limited structural isomorphism requirement,<sup>10</sup> whose role will be clarified below (16b). Along the lines of Merchant’s (2005) original proposal, we assume that parallelism is enforced by the [E]-feature on the head whose phrasal argument is elided (18).

- (16) **Parallelism:** A constituent XP can be elided only if XP is reflexively dominated by a parallelism domain PD such that there is a linguistically present antecedent constituent AC and:
- a.  $\llbracket AC \rrbracket \in \llbracket PD \rrbracket_f$  (AC is in the focus value of PD)
  - b. AC and PD are of the same syntactic category.
- (17) **Focus value:** The focus value of an expression  $\alpha$ , i.e.,  $\llbracket \alpha \rrbracket^f$  is set which is derived by replacing each focused constituent in  $\alpha$  with an expression of the same semantic type; e.g.,  $\llbracket [Jill]_F \text{ left early} \rrbracket^f = \{ \llbracket \text{left early} \rrbracket(x) \mid x \in D_e \}$
- (18)  $[H_{[E]} \text{ XP}]$  is interpretable only if XP satisfies parallelism.

With this in place, consider again the discourse in (19), repeated from (1), in a scenario in which Jill *is* known to be linguist. According to FACE, the fragment has the structure in (20), with the elided TP containing the lower copy of the fragment’s movement chain.

- (19) **Q:** Which linguist is on the committee? **A:** Jill.

- (20)  $[_{FP} [_{DP} \text{ Jill} ] [_{F_{[E]}} \overset{\Delta}{\left( [_{TP} \lambda x [ [_{DP} \text{ the } [\lambda y. y = x] [_{NP} ??] ] [_{VP} \text{ is on the committee} ] ] \right)} ] ] ] ]$

The question is what occupies the NP position marked with “??” in (20); that is, what the content of the movement trace is. Copy theory is quite clear about this: Movement of “Jill” leaves a copy of “Jill”. But what does parallelism dictate? Suppose that PD is assumed to be TP. In that case, since no constituent inside the TP is focused,  $\llbracket PD \rrbracket_f$  is a singleton containing  $\llbracket PD \rrbracket$  itself, and parallelism demands strict semantic identity between AC and PD. And if PD is the fragment’s TP, then AC must be the question’s TP, which contains a converted trace with the restrictor “*linguist*”. Hence “??” must be a copy of “*linguist*”.

But trace mismatches do not always lead to violations of parallelism. Sluicing, for instance, is permitted in spite of exactly such a mismatch, as illustrated in (21). We must

<sup>9</sup>As far as we can tell, this landing site is required for anyone attempting to characterize ellipsis parallelism in terms of Roothian focus values (Rooth 1992), as we do below, and is largely independent of our main point.

<sup>10</sup>See Fox 2022 for a recent defense of structural isomorphism in ellipsis.

thus explore whether we can choose a different PD that will let us ignore the content of the trace in the question for the purpose of evaluating parallelism with the fragment.

- (21) I know which linguist is on the committee, but I don't know which philosopher.

In a framework similar to the one we adopt, Sauerland (2004) suggests that (21) is felicitous because traces count as focused for from the perspective of parallelism when the trace is part of a chain whose head is itself focused, and the head is inside the PD. In (21), the head of the chain—“*which philosopher*”—is contrastively focused and is contained in the sluiced CP, which is the PD. Its trace therefore counts as focused, and  $[[PD]]_f$  contains alternatives that differ in the trace's restrictor. The mismatch between “*linguist*” and “*philosopher*” is thus tolerated. Perhaps, then, we can assume that in (20) the entire FP, including the focused fragment, is the PD, so that, by Sauerland's condition, the content of the trace could be ignored in the evaluation of parallelism? This would dissolve the tension between copy theory and parallelism, as the trace could then contain a copy of “*Jill*”.

This is where clause (16b) in our definition of parallelism plays its role. The clause demands limited structural isomorphism between AC and PD, including—at least—identity in syntactic category. If PD is the entire fragment, of category FP, then AC must be a constituent of the question whose meaning is in  $[[FP]]_f$ , and whose category is FP. The only constituent that could in principle satisfy the semantic clause of parallelism (16a) relative to FP is the one labeled XP in (15), immediately below Karttunen's question operator. Any constituent above the operator will fail, because the operator introduces material that is not present in the fragment at all. But XP cannot be an FP. FP, in the FACE derivation, is a projection that attracts focused elements to its specifier; XP hosts a silent intermediate trace in its specifier. Generalizing, Spec,FP cannot host silent material—a plausible property of a projection whose *raison d'être* is the licensing of a phonologically realized focus. Hence, PD must be TP, which excludes the fragment, and a trace mismatch is not tolerated as Sauerland's condition is not met (since the head of the relevant chain lies outside PD).

So copy theory requires that “??” in (20) be “*Jill*”, but parallelism demands that it be “*linguist*”. If this latter option can be made available, we obtain Jacobson's generalization for free: The elided TP would then contain the definite description “*the linguist identical to x*”, with *x* bound by the fragment, introducing the presupposition that Jill is a linguist. The fragment would thus only be defined if Jill is a linguist, while the corresponding clausal answer which need not satisfy parallelism to begin with, would carry no such presupposition. Our task, then, is to explain how this option can be made available within the framework of the copy theory and trace conversion, and to make sure it is the only available option.

We propose that this can be done by modifying the process of trace conversion. In particular, we suggest that trace conversion may replace not only the lower determiner, but also its NP restrictor, resulting in a mismatch between the overt restrictor of the moved element and the silent restrictor of its trace (22). But, to avoid overgeneration, restrictor replacement must be *recoverable*: There must be a way for interlocutors to “reverse-engineer” the silent restrictor (Pesetsky 2021). Reverse-engineering requires convergence on exactly the same NP restrictor in the syntactic derivations that the speaker and the addressee assign to the fragment. We implement this with the conditions in (23), which demand that there be

only one way to replace the restrictor that would make the resulting structure interpretable, where interpretability is taken as an umbrella term for all those constraints that make a structure both syntactically well-formed, and semantically defined.

- (22) **Radical Trace Conversion (RTC):** The restrictor of a converted trace may be substituted with a different restrictor, as long as the new restrictor is recoverable.
- (23) **Restrictor recoverability:** A restrictor P is recoverable only if:
- a. the resulting structure is interpretable
  - b. P is the only property which satisfies (a).

Consider how (22-23) give us the desired result in (20). Substituting “*linguist*” for “*Jill*” in the restrictor of the converted trace yields a structure in which the conditions imposed by the [E]-feature on F are met, because parallelism is satisfied with PD being the fragment’s TP and AC being the question’s TP. The structure is thus interpretable, as long as the pre-supposition introduced by the radically converted trace is met; i.e., as long as Jill is in fact a linguist. Any other property P in that position yields a structure in which parallelism fails, and thus speaker and addressee converge on the same restrictor: “*linguist*” is the unique property that is recoverable. Conversely, the restrictor “*Jill*” is not merely dispreferred, it is unavailable, as it yields an uninterpretable structure in which ellipsis is unlicensed. We conclude that, given RTC, the only available structure for the fragment answer in (19) is one in which movement leaves a trace with “*linguist*” in its restrictor position. This is the structure hypothesized in (14), repeated below in (24).

- (24) 
$$[_{FP} [_{DP} \textbf{Jill}] [_{F[E]} \underset{\Delta}{\left( [_{TP} \lambda x [[_{DP} \text{the } [\lambda y.y = x] [_{NP} \textbf{linguist}]] [_{VP} \text{is on the committee}]] \right)} ] ] ] ]$$

Importantly, what makes the restrictor recoverable, and RTC available, is the assumption that parallelism forces semantic identity given our forced choice of TP in the fragment as the PD. This provides interlocutors with the cue needed to converge on a unique converted trace. In run-of-the-mill cases of movement, such a cue is missing. For example, let us explore whether RTC allows the trace of *wh*-movement in the question in (2)—i.e., “*Which linguist is on the committee?*”—to differ from the overt *wh*-phrase’s restrictor. Many substitutions would result in definedness: “*academic*”, “*person*”, “*entity*”; in fact, any predicate logically weaker than “*linguist*” would impose a presupposition that would be trivially satisfied given the higher copy. But none of these options is recoverable: Since nothing in the grammar favors one over the other, interlocutors cannot converge on the same one, and RTC is blocked. Thus, RTC is applicable only if an independent grammatical constraint forces a certain unique semantic content for a movement trace. The case of ellipsis is in principle one instance of this general pattern, but it is not clear to us that there are any other such cases. This short discussion illustrates that RTC might not be as radical as one would think, given the strict recoverability constraint we impose. However, we must leave any further search of environments in which RTC may apply for future research.

#### 4. The case of VP-ellipsis

We have explained the difference between the felicitous full answer in (2a) and the infelicitous fragment answer in (2c). We now show that similar considerations account for the felicity of the answer with VP ellipsis in (2b). Notice that since both the *which*-phrase and the answer DP originate in subject position, we can choose an AC and a PD that do not include their traces—namely, VP (excluding the *v*P-internal subject). Since VP contains no copy of the moved subject, the content of the trace of *wh*-movement has no effect on the felicity of the answer, and no presupposition is generated.

But while this explains the basic example in (2b), one may wonder about cases involving a subject of a passive or unaccusative predicate, as in (25–26). There, presumably, there is a copy of the fragment DP within the elided constituent, in the internal argument position, and yet the answers are still judged to be felicitous.

(25)    **Q:** Which linguist was fired?        **A:** Jill was, (but of course she's not a linguist).

(26)    **Q:** Which linguist fell?            **A:** Jill did, (but of course she's not a linguist).

We appeal here to a well-known distinction between A-movement, involved in passive and unaccusative constructions, and A'-movement, involved in fragment answers. It has been long discussed in the literature that only the latter behaves as if it leaves a contentful trace, whereas the former behaves as if it leaves a contentless variable (cf. Lasnik 1998, Fox 1999, Messick and Thoms 2016 a.m.o.). Takahashi and Hulsey (2009) account for this by assuming that the restrictor of an A-moved DP is late-merged in its Case position, an idea they call *wholesale late merge*. On this view, there is no full definite description inside the elided VP even in (25–26) in the first place, and they are predicted to pattern like full clauses from the perspective of Jacobson's puzzle.

Since the distinguishing factor between A- and A'-movement is taken to be whether the movement targets a Case position, paired with wholesale late merge, our proposal predicts the following generalization: Copies of a moved DP *below* that DP's Case position are irrelevant to the evaluation of parallelism, and should not to give rise to Jacobson's effect. Only A'-copies matter. We also expect that if the restrictor of a *which*-phrase contains material that may itself be late-merged, that material should not give rise to Jacobson's pattern: If it is absent from the lower copy in the antecedent question, then parallelism will not require it to be present in the lower copy in the fragment, and the fragment would not inherit the presupposition of the *which*-phrase.

The prediction can be tested. In particular, Lebeaux (1991) argued that relative clauses can be merged late. We thus predict a contrast in acceptability between Jacobson's original example and examples in which the offending part of the *which*-phrase's restrictor is contained in a relative clause. Our judgment, and that of the speakers we have consulted, is that the fragment in (27A) is markedly better than (2c), though not perfect.<sup>11</sup> But this is

<sup>11</sup>This may be expected, since late merger of the relative clause is optional, and the derivation in which it is present in the lower copy remains available.

admittedly a subtle contrast. Note that uttering the fragment still commits the speaker to Jill being a professor, i.e., to the part of the restrictor that presumably cannot be late-merged, as shown in (27A').

(27) Q: Which professor who teaches linguistics is on the committee?

A: ?Jill, but (of course) she teaches philosophy.

A': #Jill, but (of course) she is an administrator.

## 5. Conclusion

Jacobson's (2016) observation that fragment answers to *which*-NP questions must denote an individual in the extension of the *which*-phrase's NP restrictor, while corresponding DPs in full clausal answers need not, stands in tension with the view of Fragments as Clausal Ellipsis, or FACE, which attempts to unify fragments and other instances of ellipsis under a single deletion mechanism (namely, the application of a silencing feature [E]). In the literature so far, Jacobson's observation has either been used to reject FACE outright, or to modify it in a way that diminishes its unifying strength, by positing fragment-specific constraints from which the observation is argued to fall out. In this paper, we have offered a FACE-compatible account of Jacobson's observation that does neither of these things.

We build on an idea from Weir 2018, that Jacobson's observation follows from the interaction between the parallelism condition on ellipsis and the effects of trace conversion. But while Weir assumes a different parallelism condition for clausal and VP ellipsis, we have argued that Jacobson's observation can, and should, be cashed out while maintaining a uniform parallelism condition. To do that, we have proposed a modification to the process of trace conversion—*radical trace conversion*—which allows interlocutors some wiggle room in coordinating the content of a deleted copy of a moved element. Our proposal has consequences beyond the particular discussion on ellipsis, which we could not consider here. If we are on the right track, we expect to find effects of RTC whenever independent constraints on well-formedness demand a particular content for a trace of some moved element. We leave the exploration of this for future work.

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