

Conditional *wh*-questions with VP Ellipsis in English*

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Abstract *Conditional wh-questions with VP Ellipsis* are root object *wh*-questions that appear with an *if*-clause which hosts an elided VP. Two interpretations of the elided object are allowed: a *wh*-bound variable or a narrow-scope indefinite. Structural diagnostics reveal that the interpretation of the elided object is correlated with the height of the *if*-clause: the *wh*-bound reading obtains iff the *if*-clause is attached inside the *wh*-question. The indefinite reading of the elided object is interesting because there the elided object apparently mismatches with its antecedent, a (reconstructed) *wh*-phrase, in two ways: they differ in their syntactic forms (a non-*wh* indefinite vs. a *wh*-phrase) as well as scope (a narrow-scope indefinite vs. a wide-scope existential quantification that scopes over the question operator). The first mismatch is resolved by adopting a theory of ellipsis that enforces a focus-based semantic identity condition. The second mismatch is resolved by adopting a Skolemized choice functional analysis of *wh*-phrases and indefinites. These theoretical ingredients are combined to develop an account of

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the height-interpretation correlation of the elided object that also explains why the elided object with an indefinite reading is allowed the mismatch that it is: through the appropriate analytical lens, the apparent mismatch is not genuine. The solution I adopt to circumvent the scopal mismatch is quite compatible with the general observation that ellipsis requires scopal parallelism.

Keywords Syntax, Semantics, VP Ellipsis, Conditionals, Ellipsis, Scope

1 Introduction

This paper concerns a construction I call *conditional wh-questions with VP Ellipsis*, exemplified in (1a) and (1b).¹ They are root object *wh*-questions that appear with an *if*-clause, which in turn contains an elided VP. For convenience, I will refer to them simply as *conditional wh-questions* whenever the presence or absence of VP Ellipsis is evident from context.

- (1) a. What museum would you visit if SALLY did Δ ?
 b. If you COULD Δ , what advice would you give to your younger self?

These examples are most naturally paraphrased as (2a) and (2b):

- (2) a. What museum x is such that you would visit x if Sally visited x ?
 b. If you could give some advice to your younger self, what advice x is such that you would give x to your younger self?

These examples are distinguished by the interpretation of the elided object. Namely, (1a) has a *bound reading*, where the elided object is interpreted as a variable bound by the *wh*-phrase, while (1b) has an *indefinite reading*, where the elided object is interpreted as an indefinite.

Ellipsis is constrained by an identity condition: a phrase can be elided only if an “identical” phrase, called its *antecedent*, is found in the context.

¹Notations: UPPERCASE denotes accented material. Δ denotes an ellipsis site. Elided material is ~~enclosed in angled brackets and struck through~~. $\text{F}[\text{This}]$ is a focus-marked constituent. Indices are subscripted on variable-like linguistic expressions (e.g. it_2, t_3) and superscripted on binder-like ones (e.g. $[\text{every student}]^4, [\text{which dog}]^5$). For types τ_1, τ_2 , the function type $\langle \tau_1, \tau_2 \rangle$ is abbreviated as $\tau_1 \tau_2$. This abbreviation is right-associative: e.g., est is $\langle e, st \rangle$, not $\langle es, t \rangle$. In lambda-terms, variable binders are subscripted with the type of the variable it binds (e.g. $\lambda x_e, \forall p_{st}, \exists f_{et}$). Metalinguistic constants are in **sans-serif** (e.g., **dog**, **believe**). For a type τ , D_τ is the set of semantic objects of type τ .

Examples of ellipsis where the elided phrase and its antecedent apparently mismatch in some respect are interesting because they tell us what differences are tolerated by the identity condition. Conditional *wh*-questions with bound readings (1a) don't seem to feature a serious mismatch: the elided object and its antecedent are both variables bound by the same *wh*-phrase. However, conditional *wh*-questions with indefinite readings (1b) constitute a new data point of mismatch; while the elided object is an indefinite, the antecedent object is a *wh*-phrase (or its trace). Indefinites and *wh*-phrases have very different syntactic properties. The primary goal of this paper is to understand why VP Ellipsis allows this mismatch to take place. To do that, I suggest we first better understand the structures underlying the two readings of this construction.

This paper is structured as follows. In Section 2, I provide more examples of conditional *wh*-questions with VP Ellipsis. These examples clearly indicate a rough correlation between the linear position of the *if*-clause and the interpretation of the elided object: the bound reading prefers a final *if*-clause, while the indefinite reading prefers an initial *if*-clause. In Section 3, I use three diagnostics to show that the two readings result from different attachment heights of the *if*-clause during interpretation: the bound reading arises when the *if*-clause is interpreted as attached *low*, i.e., inside the *wh*-question, while the indefinite reading arises when the *if*-clause is interpreted as attached *high*, i.e., outside the *wh*-question. I illustrate how this fact helps us derive the different preferences for the linear position of the *if*-clause exhibited by the two readings.

In Sections 4 and 5, I provide an analysis that explains why ellipsis is licensed in the two readings of conditional *wh*-questions only when their respective demands on their *if*-clauses' heights are met. I take the elided object and its antecedent in the indefinite reading to exhibit a genuine syntactic mismatch, and resort to a theory of ellipsis licensing that requires the elided phrase and its antecedent to be semantically, not syntactically, identical. Specifically, I assume a focus-based semantic identity condition to hold between a pair of constituents known as *parallelism domains*, which must respectively contain the elided phrase and its antecedent.

The bound reading exemplifies a configuration of VP Ellipsis known as *Co-binding*, for which ellipsis licensing accounts under this theory already exist in the literature. An account of the indefinite reading also seems within reach, especially because of the long observed semantic connection between *wh*-phrases and indefinites (Kratzer & Shimoyama, 2002). This route to an account is complicated by a scopal mismatch: the antecedent object is a *wh*-phrase, existentially quantified above the question operator denoted

by the interrogative complementizer, but the elided indefinite object, as I will show, has a very narrow-scope, non-specific reading. In general, an elided element must take parallel scope relations with its antecedent, and the semantic identity theory of ellipsis licensing I adopt also enforces this requirement. In response, I adopt a Skolemized choice function analysis of *wh*-phrases and indefinites (Kratzer, 1998; Engdahl, 1980, 1986). This helps us sidestep the scopal mismatch by modelling a narrow-scope indefinite as a wide-scope quantification over Skolemized choice functions.

In Section 6, I discuss a prediction made by my analysis: we should find indefinite readings of an elided object anteceded by a *wh*-phrase even if the elided VP is hosted in clausal adjuncts other than conditionals. I conclude in Section 7.

The main contributions of this paper are to document a new case of mismatch tolerated by VP Ellipsis, namely the mismatch between an elided narrow-scope indefinite object and an antecedent *wh*-object, and to present an ellipsis account that derives the apparent connection between the height of the *if*-clause hosting the elided VP and the interpretation of the elided object.

2 Linear position correlates with reading

In this section, I provide more examples of conditional *wh*-questions with VP Ellipsis (Section 2.1) and point out a rough correlation between the linear position of the *if*-clause and the interpretation of the elided object: the bound reading prefers a final *if*-clause, while the indefinite reading prefers an initial *if*-clause (Section 2.2).

2.1 Examples of conditional *wh*-questions with VP Ellipsis

I provide a context for each example below in (3) and (4), as well as a paraphrase of its most accessible reading. The descriptions of these contexts are meant to be non-linguistic and thus are not themselves good sources of antecedents for VP Ellipsis.

(3) *Examples with final if-clauses*

- a. (Context: you and I are grad students at a conference. You don't really like to talk to people, but I forced you to talk to many people anyways since I think that's important for networking purposes. You aren't too happy about what I did. I ask you sarcastically:)

Who would you have willingly talked to if I hadn't forced you to?

Paraphrase: Which person x is such that you would have willingly talked to x if I hadn't forced you to talk to x ?

- b. (Context: you and I both know John doesn't like to go to music festivals on his own, unlike all of his friends. He really likes to spend time with his friends, though. We also know there are music festivals that John is secretly interested in attending, and all it takes for John to actually go is for all of his friends to go to these festivals. I ask you, to find out what these festivals are:)

Which music festival would John go to if all of his friends did?

Paraphrase: Which music festival x is such that John would go to x if all of his friends went to x ?

- c. (Context: I know you like hanging out with Sally and you don't particularly like to go to museums. So I ask you:)

What museum would you visit if Sally did?

Paraphrase: What museum x is such that you would visit x if Sally visited x ?

- d. (Context: Mary is a grad student in linguistics who works on a lot of language families. Her advisor likes to tell grad students to work on as many language families as possible. In order to tease apart the language families Mary originally had interest in from those she had to be convinced by her advisor to work on, I ask:)

What language family would Mary never have worked on if her advisor hadn't told her she should?

Paraphrase: What language family x is such that Mary would never have worked on x if her advisor hadn't told her she should work on x ?

(4) *Examples with initial if-clauses*

- a. (Context: you are a grad student, and I am your advisor. Our department asks advisors to give a letter grade to each grad student at the end of every semester for their performance this semester. I want your input to decide on your grade, so I ask you:)

If you had to, what grade would you give yourself given your performance this semester?

Paraphrase: If you had to give yourself a grade, what grade x is such that you would give yourself x given your performance this semester?

- b. (Context: you and I are reflecting on the major decisions we made in life. I ask:)
 If you could, what advice would you give to your younger self?
Paraphrase: If you could give advice to your younger self, what advice x is such that you would give x to your younger self?
- c. (Context: Bill is a big fan of Kraftwerk. You and I are joking about his obsession with Kraftwerk. I ask you:)
 If Bill were asked to, which Kraftwerk song do you think he would play?
Paraphrase: If Bill were asked to play a Kraftwerk song, which Kraftwerk song x is such that you think he would play x ?
- d. (Context: you and I are grad students in the same PhD program. Having never read a single word of the grad student handbook, we are told by our advisors to check the handbook to see if we have completed our course requirements. In case we haven't, we wonder what is the easiest course we can take to clear the requirement. I ask you:)
 If the handbook says we have to, which class should we take next semester?
Paraphrase: If the handbook says we have to take some class next semester, which class x is such that we should take x next semester?

The first group of examples, (3), all feature final *if*-clauses. They are all paraphrased as having a bound reading of the elided object. The second group of examples, (4), all feature initial *if*-clauses. They are all paraphrased as having an indefinite reading.

2.2 Linear position correlates with reading

The bound readings of the examples with final *if*-clauses (3) become severely degraded when their *if*-clauses are fronted to an utterance-initial position, as shown in (5):

- (5) *Bound reading examples (3) with initial if-clauses instead*
- a. If I hadn't forced you to, who would you have willingly talked to? (*bound)
- b. If all of John's friends did, which music festival would he go to? (*?bound)

- c. If Sally did, what museum would you visit? (*bound)
- d. If Mary’s advisor hadn’t told her she should, what language family would she never have worked on? (??bound)

The indefinite readings of the examples with initial *if*-clauses (4) also degrade when their *if*-clauses are brought to an utterance-final position, as shown in (6):

- (6) *Indefinite reading examples (4) with final if-clauses instead*
 - a. What grade would you give yourself given your performance this semester, if you had to? (??indefinite)
 - b. What advice would you give to your younger self, if you could? (?indefinite)
 - c. Which Kraftwerk song do you think Bill would play, if he were asked to? (*?indefinite)
 - d. Which class should we take next semester, if the handbook says we have to? (*?indefinite)

Thus, there is a clear correlation between the linear position of the *if*-clause and the interpretation of the elided object:

- (7) *Correlation between linear position and reading*

A bound reading is better with a final *if*-clause than with an initial *if*-clause.

An indefinite reading is better with an initial *if*-clause than with a final *if*-clause.

Note that this correlation is rough and leaky, and it is intentionally stated as such. A bound reading isn’t categorically impossible with an initial *if*-clause (e.g., (5d)), nor is an indefinite reading categorically impossible with a final *if*-clause (e.g. (6a), (6b)); in fact, some speakers find the indefinite reading quite accessible with final *if*-clauses (6). Even those who don’t accept the examples in (6) tend to find them better than the bound reading examples with initial *if*-clauses (5). This correlation, as well as the acceptability difference between (6) and (5), will receive explanations in Section 3.

The correlation (7) only states that the two readings prefer different linear positions of the *if*-clause; it shouldn’t lead the reader to expect one of the two readings to consistently arise in just any conditional *wh*-question with VP Ellipsis. The availability of the two readings are controlled by other independent factors, possibly most importantly by pragmatic plausibility.

3 Height determines reading

The goal of this section is to find an explanation for the correlation (7), which linked the linear position of the *if*-clause to the interpretation of the elided object in conditional *wh*-questions. A relevant insight from the literature on the syntax of conditionals is that the many behaviors of *if*-clauses can be explained by thinking about the heights at which they are attached to their matrix clauses. With this in mind, I propose that the two readings of conditional *wh*-questions with VP Ellipsis require their *if*-clauses to be attached at different heights in their logical forms (LFs) (8):

(8) *Claim: height determines reading*

An LF where the *if*-clause is interpreted *low*, i.e., inside the *wh*-question, can be a LF for the bound reading but not for the indefinite reading.

An LF where the *if*-clause is interpreted *high*, i.e., outside the *wh*-question, can be a LF for the indefinite reading but not for the bound reading.

The configurations for the bound (1a) and indefinite (1b) reading examples at the beginning of this paper are illustrated in (9a) and (9b):

- (9) a. [*wh*-question [What museum]¹ would you visit t_1 [*if*-clause if SALLY did ~~visit it_T~~]]?
b. [*if*-clause If you COULD ~~give advice to your younger self~~],
[*wh*-question what advice would you give to your younger self]?

The first clause of (8) isn't surprising, because the bound reading, as its name suggests, requires the *wh*-phrase to bind the elided object, and this binding isn't possible unless the *if*-clause is contained in the *wh*-question. The second clause, which places a restriction on the indefinite reading, is surprising and needs to be argued for. Using diagnostics proposed in the conditional literature, I offer three arguments in order to defend the claim (8) (Section 3.1). Then, I show how the correlation (7) follows from (8) (Section 3.2). I sketch tentative LFs for the two readings of conditional *wh*-questions, i.e., more refined versions of (9a) and (9b) with enough details for us to think about ellipsis licensing (Section 3.3). Finally, I defend a tacit assumption I have been making so far, that the bound and indefinite readings require distinct LFs (Section 3.4).

3.1 Arguments for height determining reading

3.1.1 Condition C

A fundamental result from the study on the syntax of conditionals is that utterance-initial and utterance-final *if*-clauses are attached at different heights relative to their matrix clauses. This is often argued for using Condition C effects. For example, Iatridou (1991); Bhatt & Pancheva (2006) show that when the *if*-clause is initial, its subject can corefer with the matrix subject no matter if the *if*-clause subject (10a) or the matrix subject (10b) is a name. Since there are no Condition C violations, they conclude that an initial *if*-clause is adjoined to the matrix clause (11).

- (10) a. If Mary₁ is hungry, she₁ yells at Bill. (*Bhatt & Pancheva, 2006, ex. 21b*)
b. If she₁ is hungry, Mary₁ yells at Bill. (*Bhatt & Pancheva, 2006, ex. 21c*)
- (11) [*if*-clause If Mary is hungry], [*matrix* she yells at Bill].

On the other hand, if the subject of a final *if*-clause is a name, then it can't corefer with the matrix subject (12a), but it can corefer with the matrix object (12b). They conclude that a final *if*-clause is adjoined somewhere between the TP and the VP of the matrix clause (13).

- (12) a. *She₁ yells at Bill if Mary₁ is hungry. (*Bhatt & Pancheva, 2006, ex. 21a*)
b. Bill visits her₁ if Mary₁ is sick. (*Bhatt & Pancheva, 2006, ex. 22a*)
- (13) [*matrix* ... [TP She [VP yells at Bill] [*if*-clause if Mary is hungry]]].

What do Condition C tests tell us about the structures of conditional *wh*-questions? Consider the indefinite reading examples (14a), (15a). The lack of a Condition C violation with an initial *if*-clause in (14a) is expected, as we know initial *if*-clauses are attached high (14b). What about a final *if*-clause (15a)? Surprisingly, even though indefinite readings generally disprefer a final *if*-clause, there is no Condition C violation in (15a). This leads us to conclude that the *if*-clause is question-external in this example as well (15b). Thus, we know that an indefinite reading LF allows its *if*-clause to be interpreted as attached high, no matter its linear position.

- (14) a. If Sally₂ COULD ~~give advice to her₂ younger self~~, [what advice]¹ would she₂ give *t*₁ to her₂ younger self?

- b. [_{if-clause} If Sally₂ COULD ~~⟨give advice to her₂ younger self⟩~~],
 [_{wh-question} [what advice]¹ would she₂ give *t*₁ to her₂ younger self
]?]
- (15) a. ?[What advice]¹ would she₂ give *t*₁ to her₂ younger self, if Sally₂
 COULD ~~⟨give advice to her₂ younger self⟩~~?
- b. [_{wh-question} [What advice]¹ would she₂ give *t*₁ to her₂ younger self
], [_{if-clause} if Sally₂ COULD ~~⟨give advice to her₂ younger self⟩~~]?

Why does (12a) but not (15a) trip Condition C, even though both examples have final *if*-clauses? I suggest that there is a general tendency to parse a final *if*-clause as attached low (Iatridou, 1991; Fox, 2002), which leads to the ungrammaticality of (12a). This parsing preference can be countered by other factors, such as the pressure from the indefinite reading of conditional *wh*-questions to parse the *if*-clause as attached high, or prosodic clues indicating that the *if*-clause is separated from the matrix clause.² Both of these

²A reviewer points out the contrast (i) from Haegeman (1984a) (indices and brackets mine):

- (i) a. This is a note [which¹, [unless we send back *pg*₁], *t*₁ will ruin our
 relationship].
- b. *This is a note [which¹ *t*₁ will ruin our relationship [unless we send back *pg*₁
]].

This pair shows that a final *unless*-clause is preferentially attached to a low position. The high attachment of the *unless*-clause in (i.a) prevents the parasitic gap *pg*₁ from being *c*-commanded by the true gap *t*₁, licensing the parasitic gap by satisfying the so-called *anti-c-command generalization* (Engdahl, 1983; Taraldsen, 1981); the exact opposite obtains with the low attachment in (i.b).

I suggest that the general preference to parse a final adjunct as low is countered in (15a) by the pressure to interpret the elided object as having the indefinite reading, making the example acceptable. The reviewer's concern is why the pressure from licensing parasitic gaps doesn't counter the final-as-low preference in (i.b) and make it acceptable. Why do certain kinds of pressure influence derivations, but not others?

I don't have an explanation, but I will note that pressure from Condition C also doesn't seem to counter this parsing preference, as evidenced by the ungrammaticality of (12a). Perhaps Condition C and parasitic gap licensing don't influence derivations because they apply post-derivationally. Indeed, one view of Condition C is that it applies at LF (Fox, 1999), and Nissenbaum's (1998a; 1998b; 2000) analysis of parasitic gaps derives the anti-*c-command generalization* from semantic composition.

On the other hand, we know ellipsis licensing exerts great pressure on structures. For example, Quantifier Raising (QR) is typically clause-bound (ii.a), but this requirement seems to be lifted for antecedent-contained deletion (ii.b) (Cecchetto, 2004). Since the elided VP in this example has the matrix VP as its antecedent, adopting a QR solution to antecedent-contained deletion forces one to assume long-distance QR. Perhaps the

factors are in effect when parsing (15a); the comma before the *if*-clause signals the prosodic separation. Thus, (15a) is grammatical. Prosodic clues alone can be enough to avoid a Condition C-violating parse (16):

- (16) ?[Which restaurant]¹ would she₂ usually go to *t*₁, if Sally₂ wanted some good Vietnamese food?

Turning to the bound reading, we see that (17a) is ungrammatical. This must be a Condition C violation, because the grammatical (17b) forms a minimal pair with (17a). Thus, we know a bound reading LF doesn't allow its *if*-clause to be interpreted high (17c).

- (17) a. *[What book]¹ would he₂ read *t*₁ if John₂ was told to ~~read it_T~~?
 b. [What book]¹ would John₂ read *t*₁ if he₂ was told to ~~read it_T~~?
 c. [*wh*-question [What book]¹ would John₂ read *t*₁ [*if*-clause if he₂ was told to ~~read it_T~~]]?

3.1.2 Quantificational binding

Another test that diagnoses c-command relations is binding. As (18a) below shows, a quantificational subject of the matrix clause can bind into a final *if*-clause. This is expected, since we know final *if*-clauses can be contained within their matrix clauses. Surprisingly, this kind of binding can target an initial *if*-clause as well (18b).

- (18) a. [No woman]² would be proud of her₂ paper if she₂ only had three days to work on it.
 b. If she₂ only had three days to work on it, [no woman]² would be proud of her₂ paper.

The grammaticality of (18b) can be explained if we assume that its initial *if*-clause is derived by fronting a low *if*-clause; in other words, the underlying structure of (18b) is (18a). This fronting is reconstructed at LF, allowing the binding in question to proceed as it is in (18a).

indefinite reading of conditional *wh*-questions gets to influence derivations because it is a case of ellipsis.

- (ii) a. Someone said that John ate everything. ($*\forall > \exists$)
 b. John said that you were on every committee that Bill did ~~say that you were on~~. (Wilder, 1997)
 LF: [every [committee $\lambda 1$ Bill did ~~say that you were on *t*_T~~]] $\lambda 2$ John said that you were on *t*₂

When there is independent pressure that forces *if*-clauses to be interpreted as attached high, this kind of binding is predicted to be impossible. Indeed, this is exactly what we see for the conditional *wh*-question examples (19a) and (19b) with indefinite readings: the matrix subject can't bind into the *if*-clause, no matter its linear position. This again confirms that the indefinite reading requires a high *if*-clause.

- (19) a. *[What advice]¹ would [no woman]² give t_1 to her₂ younger self, if she₂ could ~~⟨give advice to her₂ younger self⟩~~?
 b. *If she₂ could ~~⟨give advice to her₂ younger self⟩~~, [what advice]¹ would [no woman]² give t_1 to her₂ younger self?

On the other hand, the bound reading allows the matrix subject to bind into the *if*-clause (20), just as the *wh*-phrase is able to. The *if*-clause of the bound reading is low.

- (20) [What book]¹ would [no man]² read t_1 if his₂ parents told him₂ not to ~~⟨read it₁⟩~~?

3.1.3 *If-then*

Another environment that forces a high-attachment interpretation of *if*-clauses is *if-then* conditionals, i.e., sentences of the form *if P then Q*. The *if*-clause in this construction is commonly analyzed as base-generated as an adjunct to the *then Q* phrase (Iatridou, 1991; Izvorski, 1996; Collins, 1998; Bhatt & Pancheva, 2006). For example, Bhatt & Pancheva (2006) posit the LF (21b) for the example (21a).

- (21) a. If it rains, then I think we should stay at home.
 b. [If it rains]², [then₂ λ3 I think [we should stay at home t_3]].

Example (22) also confirms that the *if*-clause in this construction is interpreted high; the matrix subject can't bind into the *if*-clause. This forms a minimal pair with (18b).

- (22) *If she₂ only had three days to work on it, then [no woman]² would be proud of her paper.

We can combine *if-then* conditionals and conditional *wh*-questions: these are conditional *wh*-questions with an initial *if*-clause and a *then* prefixed to the *wh*-question part. Since these are instances of *if-then* conditionals, their *if*-clauses must be interpreted high. If we are right that an indefinite

reading requires a high *if*-clause and a bound reading requires a low *if*-clause, then we would expect the indefinite reading but not the bound reading to be possible with these *if-then* flavors of conditional *wh*-questions. This is exactly borne out in (23):

- (23) a. If you could ~~⟨give advice to your younger self⟩~~, then [what advice]¹ would you give t_1 to your younger self?
 b. *If Sally did ~~⟨visit it_T⟩~~, then [what museum]¹ would you visit t_1 ?

Thus, evidence from Condition C tests, binding and *if-then* conditionals tells us that the bound reading of conditional *wh*-questions requires a low *if*-clause at interpretation, and the indefinite reading requires a high *if*-clause at interpretation. This is exactly the claim stated in (8).

3.2 How the linear position of an *if*-clause relates to its height

The bound and indefinite readings demand their *if*-clauses be interpreted as attached at different heights. This fact helps us derive the correlation (7) from Section 2, i.e., to explain why the two readings prefer different linear positions of the *if*-clause.

First, consider a conditional *wh*-question with a bound reading. By (8), we know its *if*-clause is interpreted at a low, question-internal position. Such an *if*-clause is canonically realized finally and prosodically integrated into the *wh*-question that contains it. This is why the bound reading prefers a final *if*-clause. If this *if*-clause is fronted to an initial, question-external position and linearized initially, it must be reconstructed to its base position prior to interpretation. This reconstruction is the source of the difficulty of the bound reading with an initial *if*-clause.³

³A reviewer suggests the following prediction for the bound reading with an initial *if*-clause, e.g. (5c): if the *sole* source of its difficulty is the difficulty of the reconstruction of the *if*-clause, then it should be equally degraded as (18b):

- (5c) If Sally did, what museum would you visit? (*bound)
 (18b) If she₂ only had three days to work on it, [no woman]² would be proud of her₂ paper.

This prediction is not borne out: (18b) is acceptable, while (5c) is not. I suggest that it is the difficulty of binding under reconstruction, not that of reconstruction *per se*, that underlies the contrast between these two examples. Note that reconstruction is meant to restore the binding of a pronoun, *she*₂ in (18b), and that of the elided object in the bound reading (5c), which might not be a pronoun. What if it is a parasitic gap? The following

Next, consider a conditional *wh*-question with an indefinite reading. By (8), we know its *if*-clause is interpreted at a high, question-external position. Such an *if*-clause is canonically linearized either initially or finally, but in either case, the *if*-clause is realized as prosodically separated from the *wh*-question it is adjoined to. An initial *if*-clause is unambiguously parsed as a high *if*-clause; this is why the indefinite reading prefers an initial *if*-clause. A final *if*-clause is ambiguous between a low parse and a high parse. While a low parse is generally preferred, interpretive pressures as well as prosodic clues can guide the comprehender towards a high parse, as discussed in Section 3.1. Depending on how costly it is for a given comprehender to reach the high parse, the unacceptability of the indefinite reading with a final *if*-clause can vary. For some, it is completely acceptable; for others, it is markedly worse compared to the indefinite reading with an initial *if*-clause. However, an indefinite reading with a final *if*-clause is always better than a bound reading with an initial *if*-clause. This is because an indefinite reading requires a high *if*-clause, which is a possible parse of a final *if*-clause, but a bound reading requires a low *if*-clause, which isn't a possible parse of an initial *if*-clause; reconstruction is necessary.

This concludes the explanation for the correlation (7), as well as the acceptability differences between (6) and (5).

3.3 Tentative LFs for the bound and indefinite readings

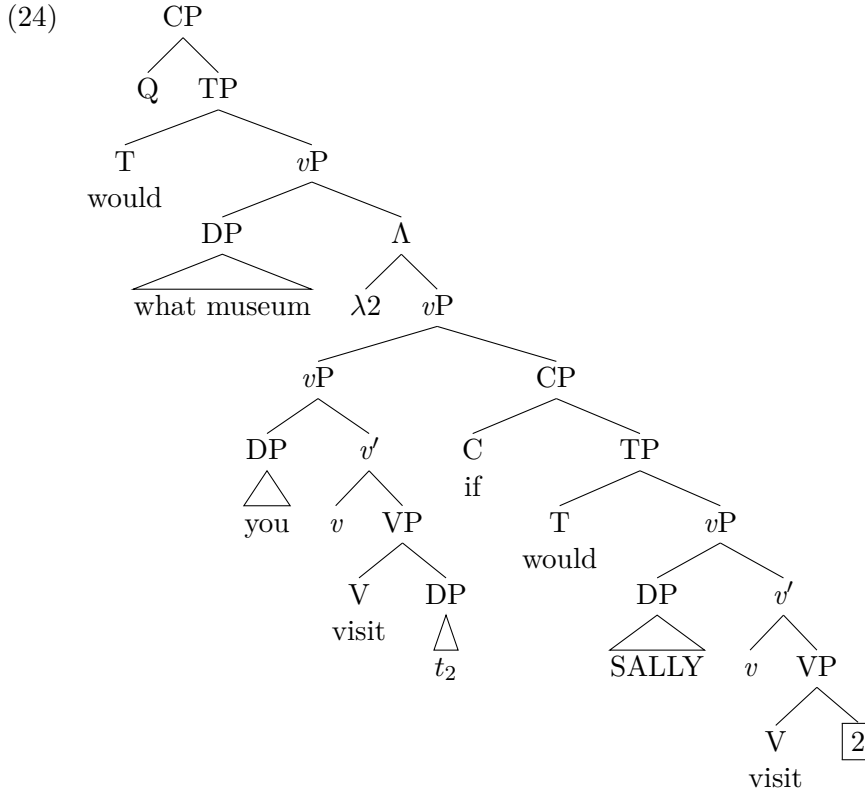
I now propose LFs for the bound and indefinite readings of conditional *wh*-questions with VP Ellipsis that respect (8), our discovery that their *if*-clauses are interpreted at different heights. For concreteness, I will focus on the bound (1a) and indefinite reading examples (1b).

The LF for the bound reading example (1a) is given in (24). For simplicity, I assume all head and A-movement to be syntactically reconstructed at LF.

contrast, (i), shows that reconstruction feeds pronominal binding but not parasitic gap licensing.

- (i) a. Who¹ did John visit t_1 without ringing { her₁ / pg₁ } up first?
- b. Without ringing { her₁ / *pg₁ } up first, who¹ did John visit t_1 ?

Then, the contrast between (18b) and (5c) would parallel the contrast (i).

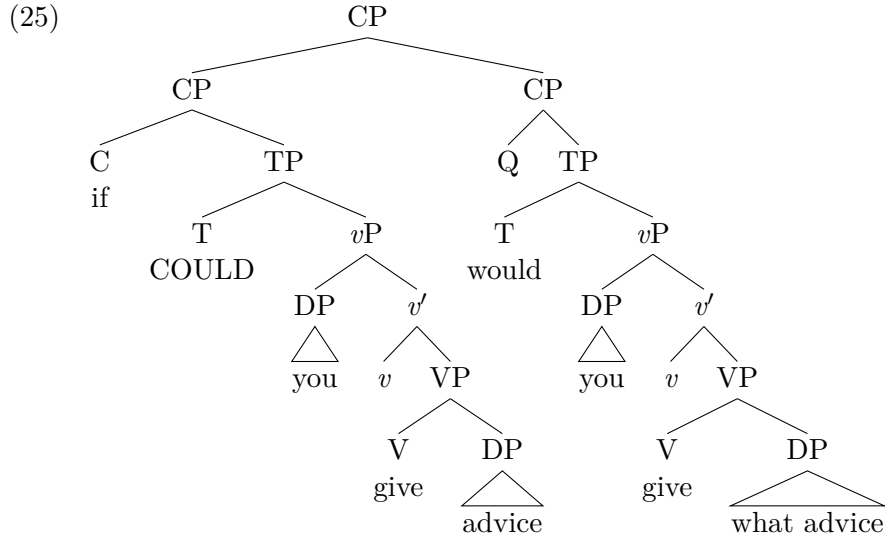


The notation for the elided object, $[k]$, is for a linguistic expression that denotes a variable indexed k (for some index k) with an unspecified syntactic form. In principle, the elided object could take on a variety of forms: a pronoun (Kennedy, 1997), a parasitic gap (Kim & Lyle, 1996), etc. I remain agnostic as to the exact syntactic form of the elided object; assuming that it denotes a variable semantically bound by the *wh*-phrase suffices for my account in Section 4.

In (24), I assume the *wh*-phrase *what museum* moves successive-cyclically through [Spec; *vP*] (Johnson, 1991; Koizumi, 1993) to [Spec; CP], and is crucially reconstructed to its intermediate position [Spec; *vP*]. Reconstruction to its base position would prevent it from binding the elided object, while not reconstructing at all would result in the elided object being bound from [Spec; CP], an A'-position. If the elided object were a pronoun, this is a crossover configuration (Reinhart, 1983; van Riemsdijk & Williams, 1981).

The LF for the indefinite reading example (1b) is given in (25). Since the *wh*-phrase doesn't bind the elided object, unlike the case for the bound reading LF (24), we have no reason to think the *wh*-phrase is in a specific po-

sition in this case. Nevertheless, I represent the *wh*-phrase as reconstructed to its base position in (25) in order to prepare the reader for the ellipsis analysis in Section 5, which requires the *wh*-phrase to be interpreted below the interrogative complementizer Q.



Note that (24) and (25) are tentative LFs for the bound and indefinite readings designed with all the information about their structures we have obtained so far. They will be refined in Sections 4 and 5 where I provide an ellipsis analysis.

3.4 Why do we need distinct LFs for the two readings?

So far, I have assumed that the bound and indefinite readings of conditional *wh*-questions are generated by distinct LFs. Is this a safe assumption? One might imagine an alternative analysis that only generates a LF for one of the two readings, from which the other reading follows by means of entailment, inference, etc.

The two readings deserve their own LFs because there are scenarios that make potential answers to the two readings of the same conditional *wh*-question different, and both answers are felicitous in such scenarios. Consider (26). The two conditional *wh*-questions in (27a) and (27b) minimally differ by the interpretation of the elided object, and they give rise to different felicitous responses. As a matter of fact, the two conversations (27a) and (27b) are both judged felicitous. This shows that both readings of the same

conditional *wh*-question are possible given the same context (26), a difficult fact to account for without generating distinct LFs for the two readings.

- (26) Context: Bill is a terrible radio DJ who loves Kraftwerk. Any time someone asks him to play a specific Kraftwerk song, he always plays a different song from what was requested. But if you allow him to play one Kraftwerk song of his choice, he always plays “Autobahn.”
- (27) a. Person 1: [Which Kraftwerk song]¹ would Bill₂ play *t*₁ if he₂ were asked to ~~play it~~?
 Person 2: No Kraftwerk song.
- b. Person 1: If he₂ were asked to ~~play a Kraftwerk song~~, [which Kraftwerk song]¹ would Bill₂ play *t*₁?
 Person 2: “Autobahn.”

4 Assumptions about ellipsis and an analysis of the bound reading

The goal of this section and the next is to produce an analysis of VP Ellipsis that derives the claim (8). That is, we want to know why ellipsis is licensed in each of the two readings of conditional *wh*-questions iff their *if*-clauses are interpreted at the correct heights.

As I discussed previously, we have *a priori* reasons to believe that a bound reading requires the *if*-clause to be low: binding requires *c*-command. However, there is no general reason why a low *if*-clause can’t contain an indefinite. Indeed, (28) shows that this is possible when there is no ellipsis. The quantificational binding in (28) confirms a low attachment of the *if*-clause.

- (28) What fruit can [no man]¹ stop eating (even) if his₁ doctor tells him₁ he₁ must stop eating fruit?

Thus, an explanation for at least the second clause of the claim (8), namely the question of why the indefinite reading doesn’t allow a low *if*-clause, must come from a theory of ellipsis.⁴

In this paper, I will work with the PF-deletion framework of ellipsis licensing theories (Fiengo & May, 1994; Chung et al., 1995; Fox, 2000; Sag & Hankamer, 1984; Merchant, 2001; van Craenenbroeck, 2010; Aelbrecht,

⁴I thank both reviewers for pointing out the importance of presenting an example like (28).

2010; Chung, 2013; Merchant, 2013), whereby the phonological deletion of a constituent E is licensed by its satisfaction of an identity condition with some antecedent constituent A . A major debate in the literature concerns the nature of this identity condition: does it require E and A to have identical form, or meaning, or both?

The indefinite reading of conditional *wh*-questions is particularly relevant in this debate. The familiar example (1b) is repeated below, with the *wh*-phrase reconstructed.

(1b) *Indefinite reading*

If you COULD \langle ~~VP_E give advice to your younger self~~ \rangle , would you [VP_A give what advice to your younger self]?

In (1b), the elided object is an indefinite, which is presumably not *wh*, while its antecedent is a *wh*-phrase (or a *wh*-trace; the point still stands). If the elided object were *wh*, we would expect an interrogative licenser somewhere in the *if*-clause, but there is none. Thus, the elided object and its antecedent take syntactically different forms. Yet, VP Ellipsis apparently doesn't care about this difference.

As I stated in Section 1, the indefinite reading adds to the growing list of apparent syntactic mismatches between certain kinds of DPs tolerated by VP Ellipsis, some of which are known as *vehicle change* effects (Fiengo & May, 1994). Three examples are illustrated in (29).

(29) a. *Name vs. pronoun* (Merchant, 2018, ex. 63)

They [VP_A arrested Alex₃], though he₃ thought they wouldn't \langle ~~VP_E arrest him₃~~ \rangle .

b. *Negative polarity item vs. indefinite* (Williams, 1977, ex. 123,125)

John doesn't [VP_A have any horses], but Bill does \langle ~~VP_E have some horses~~ \rangle .

c. *Negative indefinite vs. indefinite* (Johnson, 2001, ex. 103,104)

I could [VP_A find no solution], but Holly might \langle ~~VP_E find a solution~~ \rangle .

These examples all challenge a strict syntactic identity condition. One reaction is to adopt a weaker syntactic identity condition so that it would be satisfied by partial identity between the syntactic structures of the mismatching DPs. This is exactly Abels (2022)'s analysis of examples of the (29a) type. Assuming that reflexives and definite DPs like names structurally contain pronouns, he proposes a syntactic identity condition, which

he calls *structural recoverability*, that allows reflexives and names to antecede an elided pronoun in VP Ellipsis via partial syntactic identity. This accounts for (29a), where a name, *Alex*, antecedes an elided pronoun, *him*.

A completely different reaction is to adopt a semantic identity condition. This looks promising, because the mismatched DPs in (29) can reasonably be construed as having identical denotations: a name and a coreferential pronoun have the same denotation (29a), an NPI and a plain indefinite could be said to make equal semantic contributions (29b), and a negative indefinite is often considered to be just a plain indefinite accompanied by sentential negation (29c). This optimism might apply to the indefinite reading of conditional *wh*-questions as well: a *wh*-phrase and an indefinite are often thought to both denote existential quantification. This treatment is motivated by the cross-linguistic generalization that *wh*-phrases and indefinites share morphological makeup (Haspelmath, 1997).

In this section and the next, I provide an ellipsis analysis for conditional *wh*-questions based on an adaptation of Heim (1997)’s theory of ellipsis licensing that uses a semantic identity condition. In this section, I focus on the bound reading of conditional *wh*-questions, which belongs to a well-understood class of VP Ellipsis configurations known as *Co-binding*. I first describe Heim’s theory and my adaptation of it (Section 4.1), and then review the existing account for Co-binding under that theory (Section 4.2).

A reviewer points out an interesting connection between the indefinite reading (1b) and Sluicing: both allow a mismatch between an indefinite and a *wh*-phrase. In Sluicing examples like (30), it is the *wh*-phrase that originates from the ellipsis clause, and the indefinite from the antecedent clause: the opposite of the case in the indefinite reading.

- (30) Sally wanted a shirt from her closet. I didn’t ask [which (shirt)]¹
 ~~(she wanted t_1 from her closet)~~, as she never cares.

I will return to this connection at the end of Section 5.4.

4.1 Heim (1997) without a syntactic identity condition

I work with an adaptation of Heim (1997)’s theory of ellipsis licensing, which ultimately comes from Rooth (1992a) and Tancredi (1992). Her theory originally consists of three parts: a syntactic identity condition on the elided VP and its antecedent, a semantic identity condition (31) on a pair of constituents that respectively contain the elided and antecedent VPs, and a constraint (32) that blocks “meaningless coindexing,” a notion to be clarified later. For reasons elaborated earlier, the syntactic identity condition

incorrectly rules out any case of syntactic mismatch tolerated by VP Ellipsis, including the indefinite reading of conditional *wh*-questions. There is also independent evidence that the syntactic identity condition is too strong (Merchant, 2001). Thus, I will drop it. I will postpone the discussion of (32) to Section 4.2, where its relevance will be obvious.

(31) *Focus condition (semantic identity condition)*

An elided VP must be contained in a constituent *E* which contrasts with a constituent *A*.

(32) *No Meaningless Coindexing*

If an LF contains an occurrence of a variable *v* that is bound by a node α , then all occurrences of *v* in this LF must be bound by the same node α .

That leaves us with just the semantic identity condition (31) to discuss. This is also known as the *focus condition*, and the constituents *E* and *A* are often referred to as *parallelism domains*. The focus condition (31) depends on a definition of contrast; an intuition for an appropriate definition is given in (33).

(33) *E contrasts with A* iff *E* and *A* have equal denotations up to any focus-marked parts in *E*.

According to (33), if *E* and *A* don't have equal denotations, then they don't contrast unless all the parts of *E* responsible for the semantic inequality are focus-marked. Consider (34a), an example by Merchant (2018, ex. 98a).

(34) a. A unicorn was hoped for, and a DRAGON was ~~hoped for~~, too.
 b. Was A hoped for [a unicorn], and was ~~E hoped for~~
F[a DRAGON], too.

At LF, the indefinite subjects must be reconstructed to VP-internal positions on a non-specific reading (34b). Consequently, the elided and antecedent VPs will have different denotations, and they will not qualify as parallelism domains on a definition of contrast that requires strict semantic identity. However, observe that the semantic difference between the two VPs ultimately stems from the choice of different lexical nouns for the reconstructed subjects in the VPs. The subject of the elided VP, a *DRAGON*, is accented, which we may assume to be the result of focus-marking. Such focus-marking, according to (33), neutralizes the semantic difference between the two VPs. Thus, the two VPs contrast, and ellipsis is correctly predicted to be licensed.

The intuition (33) has received numerous implementations in the literature, to various degrees of formality and complexity. Here, I adopt Johnson (2001)’s formulation (35):

- (35) E contrasts with A iff the ordinary semantic value $\llbracket A \rrbracket^g$ is a member of the focus semantic value $\llbracket E \rrbracket_f^g$ for all assignments g .
- (36) The focus semantic value $\llbracket [X \dots \text{F}[Y] \dots] \rrbracket_f^g$ is the set consisting of all ordinary semantic values $\llbracket [X' \dots Y' \dots] \rrbracket^g$, where $\llbracket Y' \rrbracket^g$ is a semantic object with the same type as $\llbracket Y \rrbracket^g$ and X' is identical to X except that Y' replaces $\text{F}[Y]$.

Before moving on to discuss the bound reading of conditional *wh*-questions, it is worth acknowledging an ongoing debate on whether contrast as it is defined in (33) is sufficient for the focus condition.⁵ Specifically, some work in the literature (Rooth, 1992a; Griffiths, 2019; Stockwell, 2020, 2022) has advocated strengthening it to (37), a notion I will refer to as *proper contrast*. Its formalization, in the style of (35), is given in (38), and the stronger focus condition that employs it is given in (39).

- (37) E properly contrasts with A iff (i) E and A have different denotations, but (ii) equal denotations up to any focus-marked parts in E .
- (38) E properly contrasts with A iff (i) $\llbracket A \rrbracket^g \neq \llbracket E \rrbracket^g$ and (ii) $\llbracket A \rrbracket^g$ is a member of $\llbracket E \rrbracket_f^g$ for all assignments g .
- (39) An elided VP must be contained in a constituent E which properly contrasts with a constituent A .

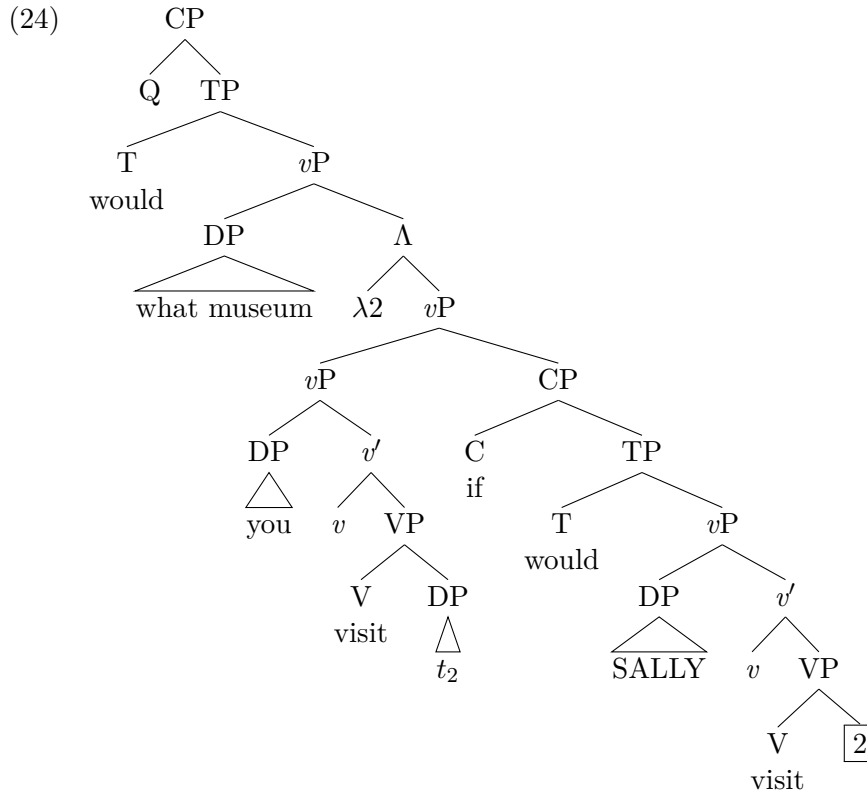
In a nutshell, proper contrast requires parallelism domains to contrast and also have different denotations. The choice of parallelism domains in our earlier example (34b) properly contrast because the reconstructed subjects lexically introduce a semantic difference (unicorns vs. dragons). Ellipsis is thus predicted to be licensed even with the stronger condition (39).

The debate between contrast and proper contrast centers on so-called *MaxElide effects* (Takahashi & Fox, 2005; Griffiths, 2019) – configurations that allow Sluicing but not VP Ellipsis – and the ban on VP Ellipsis in tautologous conditionals and free relatives (Stockwell, 2020, 2022). We will see that the bound reading of conditional *wh*-questions potentially contributes an argument in favor of proper contrast.

⁵I thank a reviewer for bringing my attention to proper contrast.

4.2 The bound reading

First, consider the bound reading LF with a low *if*-clause (24), repeated below.



In (24), the elided object and its antecedent are bound by the same element. Ellipsis configurations of this sort are known as *Co-binding* (Takahashi & Fox, 2005), for which accounts based on Heim’s theory already exist in the literature. I will briefly describe how such accounts apply to (24). We won’t commit to any specific theory of question semantics while we discuss the bound reading.

Notice that the nature of the bound reading forces the elided and antecedent objects to be coindexed. This means the elided and antecedent vPs have equal denotations under all assignments (40). Thus, the two vPs may serve as parallelism domains that satisfy the focus condition, and ellipsis would be correctly predicted to be licensed.

$$\begin{aligned}
(40) \quad \llbracket A \rrbracket^g &= \llbracket \text{I visit } t_2 \rrbracket^g &&= \text{visit}(g(2))(\text{sally}) \\
\llbracket E \rrbracket_f^g &= \llbracket_{\text{F}}[\text{SALLY}] \langle \text{visit } \boxed{2} \rangle \rrbracket_f^g &&= \{\text{visit}(g(2))(x) \mid x \in D_e\} \\
\text{Thus, } \llbracket A \rrbracket^g &\in \llbracket E \rrbracket_f^g \text{ for all } g.
\end{aligned}$$

Another eligible pair of parallelism domains is the elided VP and its antecedent (41). Which parallelism domains are the right pick here: *v*Ps, or VPs?

$$\begin{aligned}
(41) \quad \llbracket A \rrbracket^g &= \llbracket \text{visit } t_2 \rrbracket^g &&= \text{visit}(g(2)) \\
\llbracket E \rrbracket_f^g &= \llbracket \langle \text{visit } \boxed{2} \rangle \rrbracket_f^g &&= \{\text{visit}(g(2))\} \\
\text{Thus, } \llbracket A \rrbracket^g &\in \llbracket E \rrbracket_f^g \text{ for all } g.
\end{aligned}$$

Though in principle there's nothing wrong with multiple pairs of parallelism domains licensing ellipsis, I assume there is a unique pair that licenses the ellipsis in (24). I take the presence of obligatorily accented material in an VP Ellipsis construction to be an empirical clue to the size of the parallelism domains; it does so by marking the edge of the parallelism domain E . In the case of (24), the accented subject *SALLY* at [Spec; *v*P] marks the edge of E , indicating that the parallelism domains are *v*Ps. My argument is justified to the extent that this accent is obligatory.

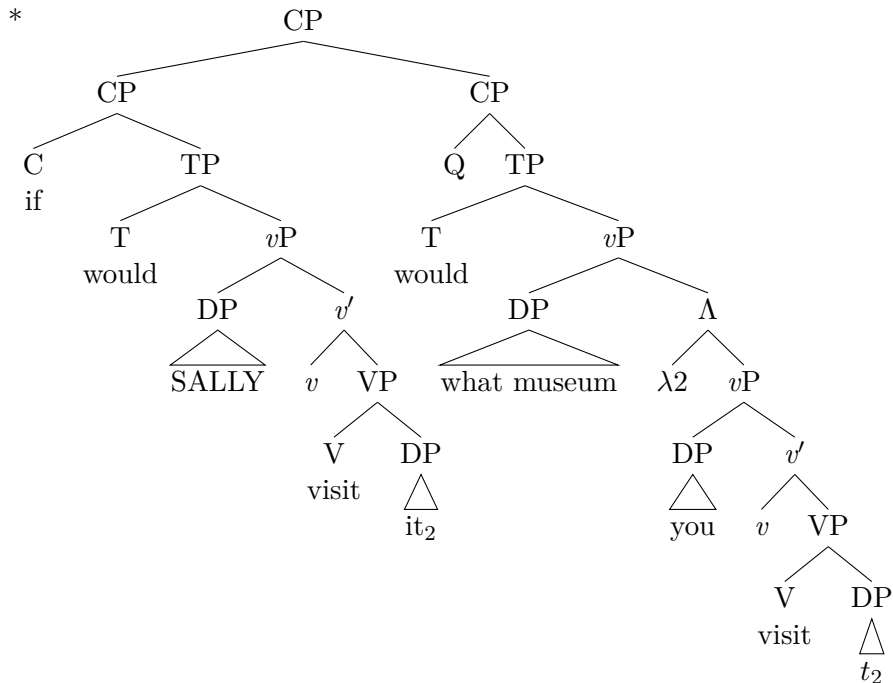
Why? Let's assume that the VPs instead were possible parallelism domains, as detailed in (41). Notice that the VPs have equal denotations, so there's no semantic difference that needs any focus-marking to be neutralized. Assuming that the accented subject *SALLY* is focus-marked, the ellipsis in (24) would have been licensed even if *SALLY* weren't focus-marked, because the same VPs could still serve as parallelism domains. In general, focus-marking is thought to be banned unless it is necessary for satisfying inviolable grammatical constraints (Schwarzschild, 1999), e.g., ellipsis licensing. If focus on *SALLY* is unnecessary for ellipsis licensing, the focus shouldn't be licensed. Thus, there must be an independent principle that rules out the VPs as parallelism domains in the case of (24). Then, the *v*Ps will be the only eligible parallelism domains, and focus on *SALLY* will be necessary in order to neutralize the subject difference.

A candidate for this principle could be the stronger focus condition (39) that requires parallelism domains to properly contrast (37). Recall that proper contrast requires the parallelism domains to have different denotations. The *v*Ps (40) do, because they have different subjects; however, the VPs (41) don't. Thus, we derive the correct choice of *v*Ps as parallelism domains if ellipsis requires proper contrast.

Despite this advantage in adopting proper contrast over contrast, I will stick to contrast for the remainder of this paper. This is because the choice between contrast and proper contrast doesn't affect my analysis of the indefinite reading of conditional *wh*-questions, which is the more novel contribution of this paper. Furthermore, the strength of this advantage entirely depends on whether the accent on *SALLY* in (24) is obligatory, a question I leave open.

Next, consider a bound reading LF with a high *if*-clause. As I stated in Section 3, such a LF *a priori* does not exist, if we think binding requires c-command. But what about a high-*if*-clause LF where the elided and antecedent objects are coindexed? Such an example is (42). It turns out that exactly the same argument we used for (24) can be applied to predict ellipsis licensing for (42), with the same *v*Ps as parallelism domains. The elided object in (42) has a non-*wh*-bound and referential reading, paraphrased in (43). Since this reading is unavailable for (42), we have a problem.

(42)



(43) *If *SALLY* would ~~visit it (= a contextually salient place)~~, what museum would you visit?

This is a well-known problem: an identity condition for ellipsis that depends

on variable indices is too weak if variables are allowed to be coindexed without being Co-bound (Sag, 1976; Williams, 1977). A typical remedy is to ban such coindexations, with a constraint on LF such as (32) (Heim, 1997), repeated below.

(32) *No Meaningless Coindexing*

If an LF contains an occurrence of a variable v that is bound by a node α , then all occurrences of v in this LF must be bound by the same node α .

Variables (i.e., traces, pronouns) are identified by their indices. The undesirable LF (42) violates (32) because one occurrence of the variable indexed 2, the antecedent object, is bound by the lambda-binder $\lambda 2$, while another one, the elided object, isn't. With (32) in place, a LF for the same meaning (43) must conindex the elided and antecedent objects. We correctly predict ellipsis to be unlicensed for such a LF.

We thus see that existing literature on Co-binding offers an adequate solution for the bound reading of conditional *wh*-questions.

So far, I have assumed that the elided object in the bound reading denotes a bound variable. A reviewer suggests that it could also be an E-type pronoun (Tomioka, 1997). In Sluicing, it has argued to be possible for an E-type pronoun to be elided, with a *wh*-trace serving as its antecedent. For example, Merchant (2001) analyzes the structure for (44) as (45), where the elided object is an E-type pronoun, represented with a superscript E. Note that the elided object isn't c-commanded by the *wh*-phrase *which suspect*, and hence can't be *wh*-bound.

(44) Which suspect did Abby call, and when?

(45) Which suspect $\lambda 2$ did Abby call t_2 , and when $\langle \text{Abby called him}_2^E \rangle$?

The E-type analysis desirably allows the elided object to establish an anaphoric dependency with the binder of its antecedent, even if it isn't syntactically bound by that binder. Applying this analysis to the bound reading of conditional *wh*-questions should produce LFs like (46a) and (46b), representing the low- and high-*if*-clause cases respectively.

- (46) a. What museum $\lambda 2$ would you visit t_2 if SALLY did $\langle \text{visit-it}_2^E \rangle$
 b. [if SALLY did $\langle \text{visit-it}_2^E \rangle$], [what museum $\lambda 2$ would you visit t_2]

A full exploration of such an E-type analysis is beyond the scope of this paper. The challenge is to adopt an appropriate semantics of E-type

pronouns so that only the LF with the low *if*-clause (46a) passes the focus condition. Simply assuming that binding requires *c*-command won't help, because E-type pronouns are interpretable without binding.

5 An analysis of the indefinite reading

This section describes an analysis of the indefinite reading. Recall that the goal is to explain the second part of the claim (8) from Section 3, i.e., why the indefinite reading requires the *if*-clause to be interpreted at a high, question-external position. We must first consider a semantics for *wh*-phrases and indefinites (Section 5.1). We will see that the indefinite reading features a mismatch between the scopes of the elided indefinite and its *wh*-phrase antecedent (Section 5.2), which I circumvent by taking *wh*-phrases and indefinites to denote Skolemized choice functions (Section 5.3). Finally, I discuss the consequences my analysis has for Parallelism (Section 5.4), a generalization that enforces elided elements and their antecedents to take parallel scope.

5.1 Alternative semantics

At the beginning of Section 4, we envisioned that an account of the indefinite reading would pan out if we could make use of the intuition that *wh*-phrases and indefinites both denote existential quantification. Let us explore this intuition more concretely. Taking the denotation of a question to be a set of propositions that denote possible answers (Hamblin, 1973; Karttunen, 1977), the denotation of a simple *wh*-question is given in (47a). The second line of that equation rewrites the set denotation as its characteristic function, which makes the underlying existential quantification more obvious, just like (47b), a minimally different sentence with an indefinite instead of a *wh*-phrase.

$$(47) \quad \begin{aligned} \text{a. } \llbracket \text{who Sally met} \rrbracket^g &= \{ \text{met}(x)(\text{sally}) \mid \text{person}(x) \} \\ &= \lambda p_{st}. \exists x_e. \text{person}(x) \wedge p = \text{met}(x)(\text{sally}) \\ \text{b. } \llbracket \text{Sally met someone} \rrbracket^g &= \exists x_e. \text{person}(x) \wedge \text{met}(x)(\text{sally}) \end{aligned}$$

We need to consider how denotations like (47a) and (47b) are built compositionally. I adopt an alternative semantics for *wh*-phrases and indefinites. In such a system, the denotations of most linguistic expressions are sets. “Normal” lexical items denote singleton sets, while indefinites and *wh*-phrases denote non-trivial sets of alternatives. I adopt a simplified two-tiered semantics of *wh*-phrases (Beck, 2006; Kotek, 2019; Uegaki, 2018), thus distin-

guishing two kinds of denotations: *ordinary semantic values* ($\llbracket \cdot \rrbracket$) and *focus semantic values* ($\llbracket \cdot \rrbracket_f$). This distinction was implicitly introduced when we adopted (36), the focus condition for ellipsis licensing. In general, lexical items have equal ordinary and focus semantic values, except *wh*-phrases: their ordinary semantic values are undefined (Beck, 2006).

Some lexical entries are illustrated in (48).

- (48) a. $\llbracket \text{Sally} \rrbracket = \{\text{sally}\}, \llbracket \text{Sally} \rrbracket_f = \{\text{sally}\}$
 b. $\llbracket \text{met} \rrbracket = \{\text{met}\}, \llbracket \text{met} \rrbracket_f = \{\text{met}\}$
 c. $\llbracket \text{someone} \rrbracket = \{x \mid \text{person}(x)\}, \llbracket \text{someone} \rrbracket_f = \{x \mid \text{person}(x)\}$
 d. $\llbracket \text{who} \rrbracket = \text{undefined}, \llbracket \text{who} \rrbracket_f = \{x \mid \text{person}(x)\}$

It will be convenient to designate a new type constructor $\{\cdot\}$, with which I will annotate the types of these alternative denotations. If τ is a type, then $\{\tau\}$ is the type of sets of objects of type τ . Then, $\llbracket \text{Sally} \rrbracket, \llbracket \text{Sally} \rrbracket_f, \llbracket \text{someone} \rrbracket, \llbracket \text{someone} \rrbracket_f$ and $\llbracket \text{who} \rrbracket_f$ all have type $\{e\}$, while $\llbracket \text{met} \rrbracket$ and $\llbracket \text{met} \rrbracket_f$ both have type $\{est\}$ (an intension).

The denotation function is defined for non-lexical trees by the usual syncategorematic rules, except these rules are extended to work with alternatives and to handle semantic computation in both the ordinary and the focus semantic space. For example, Function Application is extended to a rule known as Pointwise Function Application (49) (Hamblin, 1973; Rooth, 1985, 1992a,b).

(49) *Pointwise Function Application*

If A, B are trees, $\llbracket A \rrbracket$ has type $\{\tau_1 \tau_2\}$ for some types τ_1, τ_2 and $\llbracket B \rrbracket$ has type $\{\tau_1\}$, then $\llbracket A B \rrbracket$ has type $\{\tau_2\}$, defined by

$$\llbracket A B \rrbracket^g = \{f(x) \mid f \in \llbracket A \rrbracket^g, x \in \llbracket B \rrbracket^g\}$$

If A, B are trees, $\llbracket A \rrbracket_f$ has type $\{\tau_1 \tau_2\}$ for some types τ_1, τ_2 and $\llbracket B \rrbracket_f$ has type $\{\tau_1\}$, then $\llbracket A B \rrbracket_f$ has type $\{\tau_2\}$, defined by

$$\llbracket A B \rrbracket_f^g = \{f(x) \mid f \in \llbracket A \rrbracket_f^g, x \in \llbracket B \rrbracket_f^g\}$$

Indefinites receive their existential meanings by interacting with \exists , an operator associated with the syncategorematic rule (50). Effectively, it flattens a set of propositions by existential quantification into a singleton set containing exactly one proposition. With this rule, we fully derive the denotation of the indefinite sentence (47b), as in (51). The rule invokes a function EC, which performs the existential flattening operation.

(50) *Existential Closure*

If A is a tree and $\llbracket A \rrbracket$ has type $\{st\}$, then $\llbracket \exists A \rrbracket$ has type $\{st\}$, defined by

$$\llbracket \exists A \rrbracket^g = \{\text{EC}(\llbracket A \rrbracket^g)\}$$

If A is a tree and $\llbracket A \rrbracket_f$ has type $\{st\}$, then $\llbracket \exists A \rrbracket_f$ has type $\{st\}$, defined by

$$\llbracket \exists A \rrbracket_f^g = \{\text{EC}(\llbracket A \rrbracket_f^g)\}$$

where $\text{EC}(P)$ is defined for a set P of propositions as

$$\text{EC}(P) = \lambda w_s. \exists p_{st} \in P. p(w)$$

$$\begin{aligned} (51) \quad & \llbracket \exists [\text{Sally} [\text{met someone}]] \rrbracket^g \\ &= \{\text{EC}(\llbracket [\text{Sally} [\text{met someone}]] \rrbracket^g)\} \\ &= \{\lambda w_s. \exists p_{st} \in \llbracket [\text{Sally} [\text{met someone}]] \rrbracket^g. p(w)\} \\ &= \{\lambda w_s. \exists p_{st} \in \{\text{met}(x)(\text{sally}) \mid \text{person}(x)\}. p(w)\} \\ &= \{\lambda w_s. \exists x_e. \text{person}(x) \wedge \text{met}(x)(\text{sally})(w)\} \end{aligned}$$

Wh-phrases lack ordinary semantic values. Observe that the syncategorematic rules for a non-lexical tree, e.g., (49) and (50), require that tree's daughters to have ordinary semantic values in order to calculate an ordinary semantic value for the tree itself. Thus, any constituent that contains a *wh*-phrase would also lack an ordinary semantic value, making *wh*-questions uninterpretable. This is where the question operator Q comes in (52); it transfers the semantic value of its sister from the focus semantic space to the ordinary semantic space. This allows us to interpret a *wh*-question like (47a), as in (53).

(52) *Question*

If A is a tree and $\llbracket A \rrbracket_f$ has type $\{st\}$, then $\llbracket Q A \rrbracket, \llbracket Q A \rrbracket_f$ both have type $\{st\}$, defined by

$$\llbracket Q A \rrbracket^g = \llbracket Q A \rrbracket_f^g = \llbracket A \rrbracket_f^g$$

$$\begin{aligned} (53) \quad & \llbracket Q [\text{Sally} [\text{met who}]] \rrbracket^g \\ &= \llbracket [\text{Sally} [\text{met who}]] \rrbracket_f^g \\ &= \{\text{met}(x)(\text{sally}) \mid \text{person}(x)\} \end{aligned}$$

Two notes are in order at this point. First, in (53), I assume the *wh*-phrase is interpreted *in situ*. This significantly simplifies derivations, but it

isn't necessary. In fact, some examples require *wh*-phrases to be interpreted at moved positions, e.g., in the bound reading of conditional *wh*-questions, where *wh*-movement creates new binding relations. Alternative semantics allow an *ex situ* interpretation of *wh*-phrases, but it requires a slightly more complicated reformulation of the simple system I describe here. In particular, what we need is a generalization of Function Application that applies to the constituent labelled X in the LF for the bound reading (24), repeated below.

(24) Q would [X [what museum] $\lambda 2$ you visit t_2 if SALLY would \langle visit $\boxed{2}$ \rangle]

X consists of a *wh*-phrase, *what museum*, and a constituent that denotes a lambda abstraction, which is a function from entities to truth values. Function Application would apply here if the *wh*-phrase denoted an entity, but it doesn't because the *wh*-phrase denotes a *set* of entities. Pointwise Function Application won't apply here either, because the lambda abstraction isn't a set. We need to be able to compute a denotation for (24), or we will lose our ellipsis account for the bound reading.

Intuitively, we want to apply Function Application to the lambda abstraction and each member of the denotation of the *wh*-phrase. This way, we obtain a set of truth values, which should be the denotation for X :

(54) $\llbracket X \rrbracket = \{\text{if}(\text{visit}(x)(\text{you}))(\text{would}(\text{visit}(x)(\text{sally}))) \mid \text{museum}(x)\}$

The literature documents various ways of extending Function Application as well as other syncategorematic rules to deal with semantic composition problems like this (Shan, 2004; Romero & Novel, 2013; Charlow, 2020, 2021; Bumford, 2022). We can adopt an appropriate extension that doesn't affect our subsequent discussion.

The second note is that the operators I use for interpreting *wh*-phrases and indefinites, namely Q and \exists , are unselective. Selectivity can be introduced into our system without affecting our subsequent discussion in certain ways, e.g., by indexing alternative generators (Kratzer, 1991; Wold, 1996; Beck, 2006) or by making sets a recursive type (Bumford & Charlow, to appear).

The system I just described derives (55), an important generalization.

(55) A constituent containing a *wh*-phrase that isn't c-commanded by Q will not have an ordinary semantic value.

This generalization is an attractive feature of a two-tiered semantics for *wh*-questions, as it accounts for various kinds of intervention effects in *wh*-questions (Hoji, 1985, 1986; Beck, 1996; Beck & Kim, 1997; Hagstrom, 1998).

I will also make crucial use of (55) in my account of the indefinite reading of conditional *wh*-questions.

5.2 A partial account of the indefinite reading

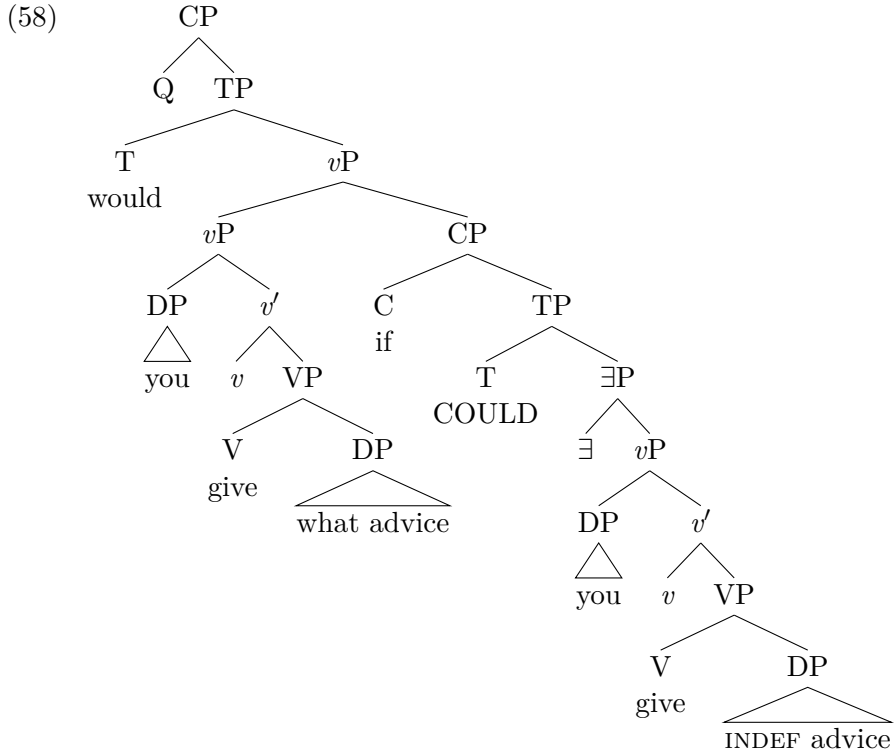
I now turn to the indefinite reading of conditional *wh*-questions. To simplify the discussion, I only consider *wh*-phrases of the form *what NP*. I assume the elided indefinite has the form *INDEF NP*, where *INDEF* is a null indefinite determiner. Crucially, an indefinite DP of this form shares a denotation with the focus semantic value of *what NP* (56). This is hopefully a harmless assumption about the form of the elided object, which is made undetectable by ellipsis anyways.

$$(56) \quad \begin{aligned} \llbracket \text{what NP} \rrbracket^g &= \text{undefined} & \llbracket \text{what NP} \rrbracket_f^g &= \{x \mid \llbracket \text{NP} \rrbracket^g(x)\} \\ \llbracket \text{INDEF NP} \rrbracket^g &= \{x \mid \llbracket \text{NP} \rrbracket^g(x)\} & \llbracket \text{INDEF NP} \rrbracket_f^g &= \{x \mid \llbracket \text{NP} \rrbracket^g(x)\} \end{aligned}$$

Since ordinary semantic values are now sets, just like focus semantic values, we need to redefine contrast (35) as (57).

$$(57) \quad E \text{ contrasts with } A \text{ iff the ordinary semantic value } \llbracket A \rrbracket^g \text{ is a subset of the focus semantic value } \llbracket E \rrbracket_f^g \text{ for all assignments } g.$$

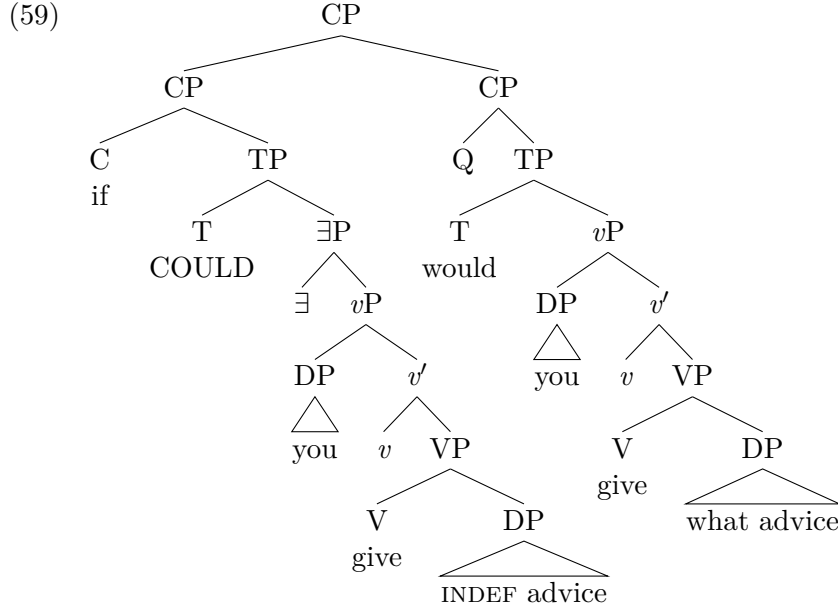
The unavailability of the indefinite reading with a low *if*-clause follows from a two-tiered semantics for *wh*-questions. Such a LF is illustrated in (58), a revision of the LF (25) from Section 3.3. The only changes are that (i) the elided indefinite object now contains an indefinite D head *INDEF*, and that (ii) the operator \exists that interacts with the elided indefinite object appears below the modal *COULD*. The position of \exists is important; we will discuss it soon.



By (57), ellipsis is licensed only if we can find parallelism domains A and E such that $\llbracket A \rrbracket^g \subseteq \llbracket E \rrbracket_f^g$ for all assignments g . This requires that $\llbracket A \rrbracket^g$ be defined in the first place. Since A must contain the antecedent object *what advice*, a *wh*-phrase, $\llbracket A \rrbracket^g$ will be undefined unless A also contains the question operator Q , by (55). The only possible A is the entire *wh*-question, but then A would contain any choice of E . This results in an inescapable antecedent containment configuration, as the focus condition can't be satisfied if A properly contains E . Thus, we correctly predict (58) to be ungrammatical.

This account effectively treats VP Ellipsis licensing as an intervener for *wh*-questions (Hoji, 1985, 1986; Beck, 1996; Beck & Kim, 1997; Hagstrom, 1998): the failure of ellipsis licensing in (58) is assimilated to an intervention effect. My treatment might seem unnatural at first glance, given that canonical interveners are lexical items, such as focus operators like *only* and *even*. However, under a view of ellipsis licensing that takes it to be largely driven by, or even reducible to, focus licensing (Rooth, 1992b,a), one would naturally expect ellipsis to trigger intervention effects just like these focus operators do.

Now, consider an indefinite reading LF with a high *if*-clause (59), which should be grammatical.



We need to locate parallelism domains A and E that satisfy the focus condition. Again, A needs to contain Q in order to have an ordinary semantic value. The *wh*-question headed by Q might be a potential choice for A (60b). An appropriate choice for E might be the TP headed by the modal *COULD* (60a).

- (60) a. $E = [_{\text{TP}} \text{F}[\text{COULD}] \exists \text{ you give INDEF advice }]$
 b. $A = [_{\text{CP}} \text{Q would you give what advice }]$

In order for E to contrast with A , all the parts of E responsible for any semantic difference between E and A must be focus-marked. The derivations in (61) show that the ordinary semantic values of A and E are indeed different.

- (61) a. $\llbracket A \rrbracket^g = \llbracket \text{Q would you give what advice} \rrbracket^g$
 $= \llbracket \text{would you give what advice} \rrbracket_f^g$
 $= \{ \text{would}(x) \mid x \in \llbracket \text{you give what advice} \rrbracket_f^g \}$
 $= \{ \text{would}(f(\text{you})) \mid f \in \llbracket \text{give what advice} \rrbracket_f^g \}$
 $= \{ \text{would}(\text{give}(x)(\text{you})) \mid x \in \llbracket \text{what advice} \rrbracket_f^g \}$
 $= \{ \text{would}(\text{give}(x)(\text{you})) \mid \text{advice}(x) \}$

$$\begin{aligned}
\text{b. } \llbracket E \rrbracket^g &= \llbracket_{\text{F}}[\text{COULD}] \exists \text{ you give INDEF advice} \rrbracket^g \\
&= \{\text{could}(x) \mid x \in \llbracket \exists \text{ you give INDEF advice} \rrbracket^g\} \\
&= \{\text{could}(\text{EC}(\llbracket \text{you give INDEF advice} \rrbracket^g))\} \\
&= \{\text{could}(\text{EC}(\{\text{give}(x)(\text{you}) \mid \text{advice}(x)\}))\}
\end{aligned}$$

There are two ways in which E and A semantically differ. First, there is a lexical difference between the modals: E has *COULD*, while A has *would*. Second, the operator \exists is present in E but not in A . As a result, the alternatives propagated from the indefinite *INDEF advice* are existentially closed in E by EC (61b), but the alternatives propagated from the *wh*-phrase *what advice* are left unclosed in A (61a).

The lexical difference between *COULD* in E and *would* in A can be neutralized by focus-marking *COULD*. This correctly accounts for the obligatory accent on *COULD*; it is the realization of a focus-mark that is necessary for licensing the ellipsis in (59).⁶

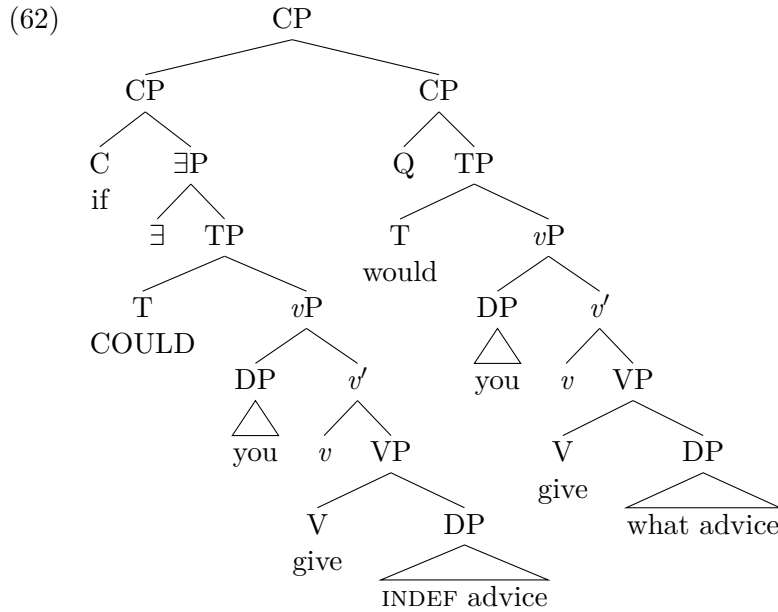
However, the semantic difference caused by \exists prevents E and A from satisfying the focus condition. Consequently, we incorrectly predict (59) to be ungrammatical. This problem could be circumvented if \exists were placed above *COULD* in the *if*-clause, i.e., if the elided indefinite scoped over the modal. That LF would be (62).

⁶According to this account, the accent on *COULD* is obligatory in (1b) because the smallest choices of parallelism domains would include the lexically different T heads, creating a lexical difference that needs to be neutralized by focus-marking. What if there is no lexical difference at the T head to neutralize in the first place? A reviewer provides the relevant pair (i).

- (i) a. If you did visit a museum, which one did you visit?
b. *If you did, which museum did you visit?

(i.b) doesn't have the meaning of (i.a); i.e., it doesn't have the indefinite reading. This could perhaps be evidence in favor of the stronger focus condition that requires parallelism domains to properly contrast (37). The LF of (i.b) is (ii); choosing the same parallelism domains as we did for (1b) won't work here, because $\llbracket A \rrbracket = \llbracket E \rrbracket$, even if we assume $\llbracket \text{INDEF museum} \rrbracket = \llbracket \text{which museum} \rrbracket$.

- (ii) If \exists $\boxed{E \text{ you did } \langle \text{visit INDEF museum} \rangle}$, $\boxed{A \text{ Q you visit } [\text{which museum}]}$?



In this case, we may select E and A as in (63).

- (63) a. $E = [TP F[COULD] \text{ you give INDEF advice }]$
 b. $A = [CP Q \text{ would you give what advice }]$

Then, the only semantic difference between E and A would be the lexical difference between *COULD* and *would*, which is neutralized by focus-marking. The ellipsis in (59) would be correctly predicted to be licensed.

However, we know that the elided indefinite in (59) takes narrow scope from examples like (64). Here, the modal in the *if*-clause is a necessity modal, which allows us to tease apart the interpretations generated from the narrow- vs. wide-scope placement of \exists ; narrow scope gives rise to a non-specific reading of the indefinite, while wide scope gives rise to a specific reading. As a matter of fact, the elided indefinite only allows a non-specific (65a) and not a specific (65b) reading. It thus appears that \exists must take narrow scope, i.e., be placed under *COULD* in (59).

(64) If Bill were asked to Δ , what Kraftwerk song would he play?

(65) a. *Narrow scope (non-specific)*

If Bill were asked \exists to ~~play INDEF Kraftwerk song~~, what Kraftwerk song would he play?

Meaning: ‘If Bill were asked to play a Kraftwerk song of his choice, what Kraftwerk song would he play?’

b. *Wide scope (specific)*

*If \exists Bill were asked to ~~play INDEF Kraftwerk song~~, what Kraftwerk song would he play?

Meaning: ‘If there is a specific Kraftwerk song that Bill were asked to play, what Kraftwerk song would he play?’

Let’s summarize the problem at hand. In order to correctly account for the obligatory accent on *COULD*, we want to require \exists to scope over the modal *COULD* in (59). However, it seems necessary to assume \exists has narrow scope, if we want to capture the non-specific reading of the indefinite. We thus have conflicting analytical tensions to model the indefinite as a wide-scope or a narrow-scope existential. Next, I show that this conflict is resolvable with an analysis of *wh*-phrases and indefinites based on Skolemized choice functions.

5.3 Skolemized choice functions

A Skolemized choice function is a choice function with an extra argument that parametrizes its choices. For any type τ , a τ -*Skolemized choice function* is a function f of type $\langle et, \tau e \rangle$ that satisfies $X(f(X)(y))$ for any non-empty set of entities $X \in D_{et}$ and an object y of type τ . I write SCF_τ for the set of τ -Skolemized choice functions.

Skolemized choice functions allow us to describe “narrow-scope” behaviors of indefinites and *wh*-phrases using wide-scope existential quantification. For example, (66) has a reading which is true when the students each read a different paper. This reading can be described by the LF (67a), where the indefinite *some paper* denotes an entity variable y that is bound by a narrow-scope existential quantifier. But it can also be described by the LF (67b), where the same indefinite denotes an e -Skolemized choice function variable f that is existentially quantified with wide scope. e is the type of entities. An f that satisfies the existential quantification might pick out different papers for different students: $f(\text{paper})(\text{john})$ could be John’s paper, $f(\text{paper})(\text{sally})$ could be Sally’s paper, and so on.

(66) Every student read some paper.

(67) a. $\forall x_e. \text{student}(x) \rightarrow \exists y_e. \text{paper}(y) \wedge \text{read}(y)(x)$

b. $\exists f_{\langle et, ee \rangle}. f \in SCF_e \wedge \forall x_e. \text{student}(x) \rightarrow \text{read}(f(\text{paper})(x))(x)$

A Skolemized choice functional analysis of indefinites and *wh*-phrases is not only possible, but necessary, as independent facts show. For example, *wh*-questions are known to admit functional answers (Engdahl, 1980, 1986; Winter, 1997; Reinhart, 1997), as shown in (68a). For convenience, we may

assume the fragment answer in (68a) is an elided form of the proposition (68b).

- (68) a. Q: Which integer does every integer precede?
 A: Its successor.
 b. Every integer precedes its successor.

The answer in (68a) is not referential: a successor isn't a specific integer. Rather, a successor is a function that picks, for every integer n , some integer that is preceded by n . If the denotation of a *wh*-question is a set of possible (propositional) answers, it has to include the unelided proposition (68b) as one member. This requirement isn't met in (69a), which is the denotation we would produce for the *wh*-question if *wh*-phrases range over individuals. However, we can write a denotation like (69b), if *wh*-phrases range over Skolemized choice functions. This set contains (68b), because a successor is a Skolemized choice function *succ* defined by $succ(\text{integer})(n) = n + 1$ for any $n \in \text{integer}$.

- (69) a. $\{\forall y_e. \text{integer}(y) \rightarrow \text{precedes}(x)(y) \mid \text{integer}(x)\}$
 b. $\{\forall y_e. \text{integer}(y) \rightarrow \text{precedes}(f(\text{integer})(y))(y) \mid f \in SCF_e\}$

As for indefinites, consider Hintikka (1986)'s discussion of indefinites headed by the phrase *a certain*. Generally, *a certain* behaves as a wide-scope existential. For example, (70) shows that indefinites headed by *a certain* can introduce referents that antecede a pronoun in a future sentence.

- (70) Richard does not have time to date a certain woman, but he sends her flowers.

However, Hintikka shows that *a certain* shows narrow-scope behavior in certain cases. In (71), the referents of *a certain NP* seems to covary with a quantifier in each sentence. How can the apparently contradictory scopal behaviors of *a certain* be reconciled?

- (71) a. According to Freud, every man unconsciously wants to marry a certain woman – his mother.
 b. Each husband had forgotten a certain date – his wife's birthday.

Kratzer (1998) analyzes *a certain* as denoting Skolemized choice functions. Recall that a Skolemized choice function takes two arguments: a set of entities to choose from, and an extra argument to parametrize the choice with.

Kratzer assumes that the extra argument is an implicit bound variable, typical of so-called “anaphoric” or “dependent” predicates like *local*, *enemy*, *foreigner*, etc. (Mitchell, 1987; Partee, 1989). The Skolemized choice function itself is existentially quantified with widest scope, but the parameter argument of a *certain* may be bound by other quantifiers, e.g., *every man* and *each husband* in (71), creating an apparent narrow-scope reading. The resulting denotations for (71) are given in (72).

- (72) a. $\exists f_{\langle et, ee \rangle} \in SCF_e. \forall x_e. \text{man}(x) \rightarrow$
 $\text{want}(\text{marry}(f(\text{woman})(x))(x))(x)$
 b. $\exists f_{\langle et, ee \rangle} \in SCF_e. \forall x_e. \text{husband}(x) \rightarrow \text{had-forgotten}(f(\text{date})(x))(x)$

The analytical tensions we face for the elided indefinite in conditional *wh*-questions are mirrored in our discussion of *a certain*. We want *a certain* to take widest scope due to its general wide-scope properties. However, we also want it to scope below a quantifier because its interpretation can covary with that of the quantifier, even though this covariance is not realized with an overt bound pronoun. Skolemized choice functions allow us to sever the restrictor of an indefinite from its existential quantifier, and effectively parametrize the restrictor with an extra variable. The existential quantification can be wide-scope, while the restrictor sits low enough for its extra variable to be bound by the right quantifier.

So far, we’ve only looked at *e*-Skolemized choice functions, *e* being the type of entities. The extra argument in Skolemized choice function can be of other types. For example, writing *s* for the type of possible worlds, *s*-Skolemized choice functions can be used to model indefinites that take narrow scope with respect to modals and intensional predicates. An example denotation (74) is given for (73). Here, *f* might pick out a different song in each possible world accessible via the modal *must*.

- (73) Bill must play a song.
 (74) $\exists f_{\langle et, se \rangle}. f \in SCF_s \wedge \text{must}(\lambda w_s. \text{play}(f(\text{song})(w))(\text{bill})(w))$

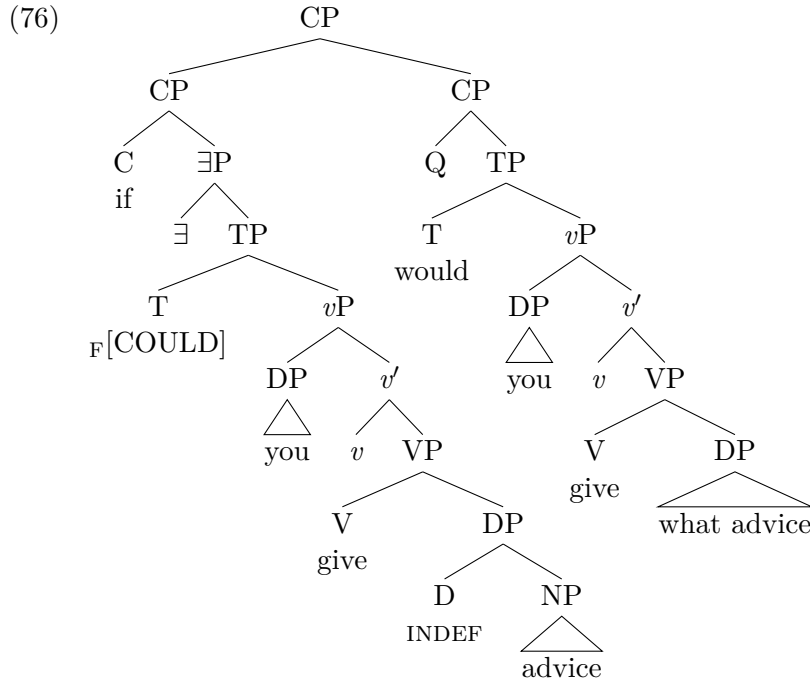
We are ready to apply Skolemized choice functions to the elided indefinite object in the indefinite readings of conditional *wh*-questions. Exactly which class of Skolemized choice functions we will use depends on the number of scope-taking operators the indefinite scopes under, and their types. In the familiar example (59), the elided indefinite object takes narrow scope with respect to one element, namely the modal *COULD*. Thus, we will use *s*-Skolemized choice functions for (59). I assume that the *wh*-determiner *what*

and the indefinite determiner *INDEF* denotes the appropriate class of Skolemized choice functions (75). Following the two-tiered analysis of *wh*-phrases, we leave $\llbracket \text{what} \rrbracket^g$ undefined. These denotations allow *what* and *INDEF* to combine with their NP complements via Pointwise Function Application.

$$(75) \quad \llbracket \text{what} \rrbracket^g = \text{undefined} \quad \llbracket \text{what} \rrbracket_f^g = SCF_s$$

$$\llbracket \text{INDEF} \rrbracket^g = SCF_s \quad \llbracket \text{INDEF} \rrbracket_f^g = SCF_s$$

I propose a new LF for the indefinite reading with a high *if*-clause, (76). This differs from the earlier LF (59) crucially in the position of \exists ; here, it is above the modal *COULD*.



The denotations of the *wh*-question and the *if*-clause are given in (77).

$$(77) \quad \llbracket \text{Q would you give what advice} \rrbracket^g$$

$$= \{ \text{would}(\lambda w_s. \text{give}(w)(f(\text{advice})(w))(you)) \mid f \in SCF_s \}$$

$$\llbracket \text{if } \exists_{F[\text{COULD}]} \text{ you give INDEF advice} \rrbracket^g$$

$$= \{ \text{if}(\text{EC}(\{ \text{could}(\lambda w_s. \text{give}(w)(f(\text{advice})(w))(you)) \mid f \in SCF_s \})) \}$$

$$= \{ \text{if}(\lambda w_s. \exists f_{(et,se)} \in SCF_s. \text{could}(w)(\lambda w'_s. \text{give}(w')(f(\text{advice})(w'))(you))) \}$$

Finally, we need to look for a pair of parallelism domains to license ellipsis. We may set A to be the entire wh -question headed by Q , and E to be the TP headed by $COULD$. Since A contains Q in addition to a wh -phrase, it has an ordinary semantic value. I show $\llbracket A \rrbracket^g$ and $\llbracket E \rrbracket_f^g$ in (78). $D_{\langle st, st \rangle}$ represents the set of propositional modifiers, which crucially includes **would** and **could**.

$$\begin{aligned}
(78) \quad \llbracket A \rrbracket^g &= \llbracket \text{Q would you give what advice} \rrbracket^g \\
&= \{ \text{would}(\lambda w_s. \text{give}(w)(f(\text{advice})(w))(\text{you})) \mid f \in SCF_s \} \\
\llbracket E \rrbracket_f^g &= \llbracket \text{F[COULD] you give INDEF advice} \rrbracket^g \\
&= \{ h(\lambda w_s. \text{give}(w)(f(\text{advice})(w))(\text{you})) \mid f \in SCF_s, h \in D_{\langle st, st \rangle} \} \\
&= \{ \text{would}(\lambda w_s. \text{give}(w)(f(\text{advice})(w))(\text{you})) \mid f \in SCF_s \} \cup \\
&\quad \{ \text{could}(\lambda w_s. \text{give}(w)(f(\text{advice})(w))(\text{you})) \mid f \in SCF_s \} \cup \\
&\quad \dots
\end{aligned}$$

Thus, $\llbracket A \rrbracket_g$ is a subset of $\llbracket E \rrbracket_f^g$, which means the focus condition holds. Ellipsis is correctly predicted to be licensed.

This concludes my account for the indefinite reading of conditional wh -questions. Taking indefinites and wh -phrases to denote sets of Skolemized choice functions has two advantages: it captures our original intuition that indefinites and wh -phrases pass the ellipsis licensing condition by being “semantically identical”, while helping us circumvent an apparent scopal mismatch.

5.4 Consequences for parallelism

An important and consistent finding in the literature is that ellipsis is subject to a condition that requires the elided constituent and its antecedent to host structurally parallel dependencies (Williams, 1977; Rooth, 1992a; Fiengo & May, 1994; Fox, 2000; Fox & Lasnik, 2003; Takahashi & Fox, 2005; Hartman, 2011; Griffiths & Lipták, 2014; Barker, 2013; Thoms, 2016; Messick & Thoms, 2016). This condition is known as Parallelism, a syntactic condition that could be informally defined as (79).

$$\begin{aligned}
(79) \quad \textit{Parallelism} \\
&\text{Ellipsis is licensed only if the parallelism domains } A \text{ and } E \text{ host} \\
&\text{structurally parallel (scope, variable binding) dependencies.}
\end{aligned}$$

To see Parallelism at work, consider (80). The clauses respectively hosting the elided VP and its antecedent – call them the *ellipsis clause* and the *antecedent clause* – each in principle should be ambiguous between a surface

vs. inverse scope reading. Crossing the ambiguities across the two clauses should give us four readings, but only two are actually available for (80): one where both clauses have surface scope (80a), and one where both have inverse scope (80b). The two other readings, where one clause has surface scope and the other has inverse scope, are ruled out. Parallelism is one explanation for why only (80a) and (80b) are available: these are the only readings where the object traces t_2 and t_4 are bound from parallel positions.

(80) A nurse saw every patient. A doctor did ~~(see every patient)~~, too.

a. *Parallel surface scope*

$$\begin{aligned} & \exists n_e. \text{nurse}(n) \wedge \forall p_e. \text{patient}(p) \rightarrow \text{saw}(p)(n) \\ & \wedge \exists d_e. \text{doctor}(d) \wedge \forall p_e. \text{patient}(p) \rightarrow \text{saw}(p)(d) \\ & [\text{a nurse}] \lambda 1 [\text{every patient}] \lambda 2 t_1 \text{ saw } t_2 \\ & [\text{a doctor}] \lambda 3 [\text{every patient}] \lambda 4 t_3 \text{ did } \langle \text{see } t_4 \rangle \end{aligned}$$

b. *Parallel inverse scope*

$$\begin{aligned} & \forall p_e. \text{patient}(p) \rightarrow \exists n_e. \text{nurse}(n) \wedge \text{saw}(p)(n) \\ & \wedge \forall p_e. \text{patient}(p) \rightarrow \exists d_e. \text{doctor}(d) \wedge \text{saw}(p)(d) \\ & [\text{every patient}] \lambda 2 [\text{a nurse}] \lambda 1 t_1 \text{ saw } t_2 \\ & [\text{every patient}] \lambda 4 [\text{a doctor}] \lambda 3 t_3 \text{ did } \langle \text{see } t_4 \rangle \end{aligned}$$

One problem posed by the indefinite reading of conditional *wh*-questions was a scope mismatch. Recall (64), repeated below. The *wh*-phrase *what Kraftwerk song* scopes over the modal *would* in the *wh*-question, as it scopes over the question operator, an even higher element. The elided indefinite exhibits covariance with respect to the modal in the *if*-clause, an apparently narrow-scope behavior.

(64) If Bill were asked to Δ , what Kraftwerk song would he play?

We overcame this problem by treating the indefinite as a Skolemized choice function, which allows us to model its apparent narrow-scope behavior with wide-scope existential quantification. In a way, we have explained away an apparent violation of scope parallelism. A natural concern follows: does my account disrupt previous findings that build on Parallelism?

This is an important question because Parallelism has been used to produce explanations of independent facts about ellipsis. For example, consider (81). This shares an antecedent clause with (80), which in principle is ambiguous between surface scope and inverse scope. However, the antecedent clause in (81) only has a surface scope reading (81a); inverse scope (81b) is

unavailable. The crucial difference between (80) and (81) lies in their ellipsis clauses. Surface scope and inverse scope create distinct meanings in the ellipsis clause in (80), resulting in a scopal ambiguity. In the ellipsis clause of (81), the two scope relations create equivalent meanings, resulting in no ambiguity. Thus, pairing a scopally ambiguous clause with a scopally unambiguous clause containing ellipsis seems to disambiguate the antecedent clause towards surface scope.

(81) A nurse saw every patient. Dr. Smith did Δ , too.

a. *Surface scope*

$$\begin{aligned} & \exists n_e. \text{nurse}(n) \wedge \forall p_e. \text{patient}(p) \rightarrow \text{saw}(p)(n) \\ & \wedge \forall p_e. \text{patient}(p) \rightarrow \text{saw}(p)(\text{smith}) \end{aligned}$$

b. *Inverse scope*

$$\begin{aligned} * & \forall p_e. \text{patient}(p) \rightarrow \exists n_e. \text{nurse}(n) \wedge \text{saw}(p)(n) \\ & \wedge \forall p_e. \text{patient}(p) \rightarrow \text{saw}(p)(\text{smith}) \end{aligned}$$

Fox's (1995; 2000) account of the lack of the inverse scope reading (81b) combines Parallelism and a constraint on Quantifier Raising (QR) called *Scope Economy*. First, the quantificational object *every patient* undergoes QR to a position right under the subject. This happens in all of the clauses in (80) and (81), because otherwise the object is uninterpretable due to its quantificational type. If QR stops here, we get the surface scope reading (81a).

To generate inverse scope, a further step of QR is needed, moving *every patient* past the subject. Unlike the previous step of QR, this QR is not type-driven. Fox posits that QR is subject to Scope Economy, which states that any step of QR needs to be type-driven, or it must create a different meaning. Thus, Scope Economy allows *every patient* to QR past the subject in the antecedent clauses of (80) and (81) as well as the ellipsis clause of (81), generating (82a) and (82b), since the subject in these clauses are existential quantifiers. On the other hand, the ellipsis clause of (81) has a referential subject, so Scope Economy prevents *every patient* from undergoing QR in this clause (82c). Parallelism requires a step of QR to apply in the ellipsis clause iff a parallel step of QR applies in the antecedent clause. Thus, inverse scope is allowed in (80), but ruled out in (81b).

(82) *Non-type-driven QR: inverse scope*

- a. [every patient] $\lambda 3$ [a nurse] $\lambda 1$ t_3 $\lambda 2$ t_1 saw t_2
- b. [every patient] $\lambda 3$ [a doctor] $\lambda 1$ t_3 $\lambda 2$ t_1 saw t_2

c. * [every patient] $\lambda 3$ Dr. Smith $\lambda 1$ t_3 $\lambda 2$ t_1 saw t_2

It turns out that Skolemized choice functions don't create problematic interactions with Parallelism. My argument for this claim comes in two steps: first, I will show that my account for conditional *wh*-questions is compatible with Parallelism. I have only assumed a semantic identity condition at work for ellipsis licensing, but our core predictions don't change even if we assume Parallelism further constrains ellipsis. Then, I will show that expressions that denote Skolemized choice functions obey Parallelism in unsurprising ways. Skolemized choice functions can be used to model apparent wide-scope and narrow-scope readings alike without moving. When Parallelism forces an indefinite that can denote a Skolemized choice function to stay *in situ*, the indefinite can generate a specific reading. And when we want Parallelism to force such an indefinite to be existentially quantified with wide scope, the indefinite can still generate a non-specific reading.

First, consider how further restricting ellipsis licensing with Parallelism (79) affects of account. The ungrammatical cases will continue to be ruled out even without this restriction: we rule out the bound reading with a high *if*-clause by assuming binding to require c-command, and we rule out the indefinite reading with a low *if*-clause by the same antecedent containment account.

The grammatical cases (24), (76) are compactly represented below. The bound reading with a low *if*-clause (24) respects Parallelism, because the elided object and its antecedent are bound by the same binder. The indefinite reading with a high *if*-clause (76) also respects Parallelism because the *wh*-phrase and the elided indefinite are associated with operators in parallel positions: the question operator Q and the existential closure operator \exists both take scope over the modals in their respective clauses. Thus, the utility of my account is preserved even when we take Parallelism into account.

(24) Q would [what museum] $\lambda 2$ [[you visit t_2]
[if would SALLY \langle visit $\boxed{2}$ \rangle]]

(76) if \exists COULD you give INDEF advice
 Q would you give what advice

Next, let us explore the general consequences of adopting Parallelism and a Skolemized choice function treatment of *wh*-phrases and certain indefinites. In particular, consider the ellipsis disambiguation paradigm (81). This creates an environment where Parallelism and Scope Economy conspire to block an indefinite from moving to take scope. For indefinites that are true quantifiers, this disambiguates the indefinite towards a surface, narrow-scope

reading. However, for indefinites that can denote Skolemized choice functions, this paradigm shouldn't rule out a wide-scope reading: Skolemized choice functions are choice functions, which don't need to move to take apparent wide scope. This feature is exactly what makes them powerful enough to model exceptionally wide-scope readings of indefinites (Reinhart, 1997; Winter, 1997).

To test this prediction, consider (83). The antecedent clause of this example has a specific reading of the indefinite *some book*. This reading can be described as a wide-scope existential, as in (83a). However, this reading involves a step of QR that would be blocked by a conspiracy between Scope Economy and Parallelism: Scope Economy blocks the indefinite from QRing past *(even) Sally* in the ellipsis clause, and Parallelism blocks the same QR step in the antecedent clause as well.⁷ Thus, the specific reading is incorrectly predicted to be unavailable. On the other hand, if *some* can denote a Skolemized choice function, as Kratzer (1998) proposes, an alternative derivation (83b) becomes available. Parallelism is respected because both indefinites stay *in situ*. The Skolemized choice function denoted by *INDEF* takes two arguments: a NP complement which denotes the domain of choice, and a variable that parametrizes the choice. This interpretation subsumes the “wide-scope existential” reading. It obtains when the context verifies the existential quantification in (83b) with a *constant* function f that picks the same book for all individuals: in other words, $f(\text{book})(x) = f(\text{book})(y)$ for all x, y . This is a desirable prediction.

(83) Almost every student read some book. (Even) Sally did.

a. QR

$$\begin{aligned}
 & * \exists b_e. \text{book}(b) \wedge |\{s \mid \text{student}(s) \wedge \text{read}(b)(s)\}| = 0.9|\{s \mid \text{student}(s)\}| \\
 & \quad \wedge \exists b_e. \text{book}(b) \wedge \text{read}(b)(\text{sally}) \\
 & \quad [\text{some book}] \lambda 3 \text{ almost every student read } t_3 \\
 & \quad *[\text{some book}] \lambda 4 (\text{even}) \text{ Sally did } \langle \text{read } t_4 \rangle
 \end{aligned}$$

b. *Skolemized choice functions*

⁷It may be strange to assume that Scope Economy blocks QR past a subject modified by *even*. However, true quantifiers simply don't have a wide-scope reading in this position:

(i) Even John read every book.

- a. It is surprising that, for every book x , John read x . (*even* > \forall)
 b. *For every book x , it is surprising that John read x . (\forall > *even*)

Whatever principle blocks the reading (i.b), be it Scope Economy or something else, suffices for our discussion here.

$$\begin{aligned} & \exists f \in SCF_e. |\{s \mid \text{student}(s) \wedge \text{read}(f(\text{book})(s))(s)\}| = 0.9|\{s \mid \text{student}(s)\}| \\ & \wedge \exists f \in SCF_e. \text{read}(f(\text{book})(\text{sally}))(\text{sally}) \\ & \exists \text{almost every student } \lambda 1 t_1 \text{ read } [[\text{INDEF book}] 1] \\ & \exists (\text{even}) \text{ Sally } \lambda 2 t_2 \text{ did } \langle \text{read } [[\text{INDEF book}] 2] \rangle \end{aligned}$$

We can test this prediction again with *a certain*, which is also an indefinite which Kratzer (1998) argues to denote a Skolemized choice function. First, consider (84). This example serves as the baseline that illustrates that the contracted negation *n't* and existential quantifiers show the same interaction as in (81); the antecedent clause only has a surface scope reading (84a) and not an inverse scope reading (84b). Fox's account predicts this contrast correctly: the QR step necessary for delivering inverse scope is blocked by Scope Economy, and Parallelism rules out inverse scope for the antecedent clause as well.

(84) John didn't read five books, but Sally did Δ .

a. *Surface scope*

$$\begin{aligned} & \neg \exists 5b_e. \text{book}(b) \wedge \text{read}(b)(\text{john}) \\ & \wedge \exists 5b_e. \text{book}(b) \wedge \text{read}(b)(\text{sally}) \\ & \text{John } \lambda 1 \text{ not } [\text{five books}] \lambda 2 t_1 \text{ read } t_2 \\ & \text{Sally } \lambda 1 [\text{five books}] \lambda 2 t_1 \text{ did } \langle \text{read } t_1 \rangle \end{aligned}$$

b. *Inverse scope*

$$\begin{aligned} & * \exists 5b_e. \text{book}(b) \wedge \neg \text{read}(b)(\text{john}) \\ & \wedge \exists 5b_e. \text{book}(b) \wedge \text{read}(b)(\text{sally}) \\ & [\text{five books}] \lambda 3 \text{ John } \lambda 1 \text{ not } t_3 \lambda 2 t_1 \text{ read } t_2 \\ & *[\text{five books}] \lambda 3 \text{ Sally } \lambda 1 t_3 \lambda 2 t_1 \text{ did } \langle \text{read } t_2 \rangle \end{aligned}$$

Now, consider (85). This example is like (84), except the object is now an indefinite of the form *a certain NP*. The most natural reading of this example is one where the indefinite has a wide-scope reading. This reading can't be generated by QR, as Scope Economy and Parallelism would conspire to block that reading (85a). However, a Skolemized choice functional analysis of *a certain* would correctly generate this reading with the structure (85b), where Parallelism is respected because the indefinites in both clauses are interpreted *in situ*.

(85) John didn't read a certain book, but Sally did.

a. *QR*

- * $\exists b_e. \text{book}(b) \wedge \neg \text{read}(b)(\text{john})$
 $\wedge \exists b_e. \text{book}(b) \wedge \text{read}(b)(\text{sally})$
[a certain book] $\lambda 3 \text{ John } \lambda 1 \text{ not } t_3 \lambda 2 t_1 \text{ read } t_2$
*[a certain book] $\lambda 3 \text{ Sally } \lambda 1 t_3 \lambda 2 t_1 \text{ did } \langle \text{read } t_2 \rangle$
- b. *Skolemized choice functions*
 $\exists f \in SCF_e. \neg \text{read}(f(\text{book})(\text{john}))(\text{john})$
 $\wedge \exists f \in SCF_e. \text{read}(f(\text{book})(\text{sally}))(\text{sally})$
 $\exists \text{ John } \lambda 1 \text{ not } t_1 \text{ read } [[\text{INDEF book}] 1]$
 $\exists \text{ Sally } \lambda 1 t_1 \text{ did } \langle \text{read } [[\text{INDEF book}] 1] \rangle$

We thus see that the ellipsis disambiguation paradigm doesn't prevent Skolemized choice functions from having specific readings.

There are also situations where we want Parallelism to apply to a case of ellipsis where an indefinite is quantified with wide scope. One such situation arises when we look at Sluicing. In Sluicing, an indefinite, called the *correlate*, serves as the antecedent of a *wh*-phrase that moves out of a clausal ellipsis site, called the *fragment*. Consider (86), an example by Chung et al. (1995): here, the correlate is the indefinite *a book*, which antecedes the *wh*-phrase fragment *which one*.

- (86) She always reads a book at dinner time. We can't figure out [which one]¹ $\langle \text{she always reads } t_1 \text{ at dinner time} \rangle$.

A widely held generalization is that the indefinite correlate in Sluicing has to take widest scope in its own clause (Romero, 1998). This is supported in (86); the indefinite has a specific reading and not a non-specific one. Since the fragment scopes over the question operator in its own clause, the correlate and the fragment have parallel scope. This parallelism has important theoretical consequences: for example, it is crucially assumed in certain accounts (Fox & Lasnik, 2003; Griffiths & Lipták, 2014; Messick & Thoms, 2016) of the fact that VP Ellipsis doesn't repair island violations in certain ellipsis sites, while Sluicing does (87).

- (87) John said he met someone who resembled a certain celebrity, but I don't know ...
- a. ... [which celebrity]¹ $\langle \text{he said he met someone who resembled } t_1 \rangle$.
 - b. * ... [which celebrity]¹ he did $\langle \text{say he met someone who resembled } t_1 \rangle$.

However, some examples of Sluicing feature non-specific indefinite correlates, such as (30), repeated below. If we treat this indefinite with a narrow-scope existential, either as a quantifier or a non-Skolemized choice function, we get the familiar scope mismatch between the indefinite and the *wh*-phrase. One way to maintain the parallelism between the scopes of the indefinite and the *wh*-phrase in such examples is, again, to treat the indefinite as denoting a Skolemized choice function (88).

- (30) Sally wanted a shirt from her closet. I didn't ask [which (shirt)]¹ ~~she wanted t_1 from her closet~~, as she never cares.
- (88) \exists Sally wanted INDEF shirt from her closet.
I didn't ask ~~(\exists she wanted which shirt from her closet)~~, as she never cares.

We thus see that examples of Sluicing featuring indefinite correlates with non-specific readings don't prevent them from satisfying Parallelism.

It seems that Skolemized choice functions are quite compatible with theories of ellipsis that adopt a Parallelism condition. My account of conditional *wh*-questions may be safely augmented with Parallelism, to no negative effect.

6 VP Ellipsis in other kinds of adjuncts

In this section, I explore a prediction made by my account of the indefinite reading of conditional *wh*-questions.

What I have been calling “the indefinite reading” is a pattern in VP Ellipsis that allows a *wh*-phrase to antecede an elided indefinite. In this paper, I focus on a construction where VP Ellipsis takes place in a specific clausal adjunct: *if*-clauses. Importantly, the attachment height of the *if*-clause controls the grammaticality of the indefinite reading. I confirm this claim empirically using structural diagnostics in Section 3, derive this claim using an ellipsis account in Section 5. Note that none of my discussion so far depends on having ellipsis occur specifically in *if*-clauses. Thus, we should expect to see the indefinite reading in other kinds of clausal adjuncts as well.

Liliane Haegeman's work on the external syntax of clausal adjuncts provides a testing ground for this prediction. In a series of papers, Haegeman (1984a,b,c, 2002, 2003a,b, 2006) argues that adverbial clauses can be classified into two groups, *central* and *peripheral*, which differ in both their semantic contributions as well as the ways in which they are structurally integrated to their matrix clauses (their *external syntax*). It is possible for the

same subordinating conjunction to introduce a central as well as a peripheral adverbial clause. For example, the *if*-clause in (89a) is central, while that in (89b) is peripheral, per Haegeman’s classification.

- (89) a. If it rains, I’ll bring an umbrella.
b. If it’s going to rain, why don’t we stay at home?

According to Haegeman, central adverbial clauses modify the event structure described by their matrix clauses, while peripheral adverbial clauses modify the discourse structure their matrix clauses are situated in. For example, the central *if*-clause in (89a) describes a condition that restricts the umbrella-bringing event described by the matrix clause, while the peripheral *if*-clause in (89b) provides a premise that makes asking the matrix question relevant. This semantic difference between the two kinds of adverbial clauses correlate with their attachment heights relative to their matrix clauses. Haegeman uses structural diagnostics to show that central adverbial clauses are interpreted as attached inside their matrix clauses, while peripheral ones aren’t. To state my results about conditional *wh*-questions in Section 3 in Haegeman’s terms, a conditional *wh*-question has a bound reading when it has a low, central *if*-clause, and an indefinite reading when it has a high, peripheral *if*-clause.

As I said earlier, the availability of the indefinite reading is controlled only by the height of the adjunct that contains the elided VP; the type of the adjunct does not matter. Then, we might expect that the generalization concerning the distribution of bound and indefinite readings to carry over to other kinds of adverbial clauses. For example, Haegeman shows that *while* can introduce central and peripheral adverbial clauses. In (90a), *while* is central; it introduces a temporal adjunct. In (90b), *while* is peripheral; it introduces a relevant fact that contrasts with the proposition expressed in the matrix clause.

- (90) a. These kids only behave while their parents are around.
b. While the weather is nice here in California, it can get very dry.

Haegeman (2003a) shows that central *while*-clauses are structurally integrated in their matrix clauses, while peripheral *while*-clauses aren’t. We would then expect central *while*-clauses to be able to host a bound reading and peripheral *while*-clauses to be able to host an indefinite reading of an elided VP. This prediction is borne out in the example (91) below.

- (91) a. (*Context: Sally watched a bunch of movies during a long flight. John, who sat next to her, was looking at her screen from time to time. You want to know which movies Sally watched while John was looking at her screen, asking in a funny way:*)
 [Which movie]¹ was Sally watching t_1 while John was ~~watching~~ it_T ?
- b. (*Context: I reminded you that we are going to our friend Bill's housewarming party. I ask you:*)
 While Bill made it clear that we don't have to ~~bring a gift~~,
 [what kind of gift]¹ do you think we should bring t_1 ?

Thus, I think Haegeman's distinction between central and peripheral adverbial adjuncts makes a good starting point for a systematic investigation of the indefinite reading in clausal adjuncts other than *if*-clauses.

A final note is in order. I have characterized the *if*-clauses of conditional *wh*-questions with the indefinite reading as being "high" and "question-external", but a more accurate characterization might have been "not low" and "not question-internal". After all, all that matters is that such *if*-clauses are not attached question-internally; they might not be attached to the *wh*-question at all, and instead might constitute a separate structure from the *wh*-question. Haegeman makes a similar point: while central adverbial clauses are attached inside their matrix clauses, peripheral adverbial clauses aren't necessarily attached outside; all facts merely suggest that they are not integrated into the structure of their matrix clauses. This is an important clarification because I am agnostic to the exact syntax/semantic analysis of peripheral *if*-clauses that result in an indefinite reading of conditional *wh*-questions. Such analyses might differ in whether they take these *if*-clauses to be attached to the *wh*-question at all; either way, the results in this paper should hold.

7 Conclusion

In this paper, I discuss conditional *wh*-questions with VP Ellipsis, which are root object *wh*-questions that appear with an *if*-clause that hosts an elided VP. The object of the elided VP has two possible interpretations: the bound reading, whereby the elided object is a variable bound by the *wh*-phrase, or the indefinite reading, whereby the elided object is a narrow-scope indefinite.

Structural diagnostics indicate that the interpretation of the elided object is conditioned by the height at which the *if*-clause is attached: the bound

reading requires a question-internally attached *if*-clause, and the indefinite reading requires a question-externally attached *if*-clause.

An account of the VP Ellipsis in conditional *wh*-questions must explain two things: why the indefinite reading is possible at all, even though it features a syntactic mismatch between elided object and its antecedent; and why the two interpretations of the elided object depend on different heights of the *if*-clause. An intuition towards an answer to the first question arises once we adopt a theory of VP Ellipsis driven by a semantic identity condition as well as alternative semantics: indefinites and *wh*-phrases count as identical for ellipsis licensing because they both denote alternatives. However, the connection between the two readings and *if*-clause height is still a challenge, because the indefinite reading of conditional *wh*-questions features a scopal mismatch between the elided object and its antecedent: the antecedent object is a *wh*-phrase, which is a widest-scope existential, while the elided object is a narrow-scope indefinite. Analyzing *wh*-phrases and indefinites as denoting Skolemized choice functions allows us to avoid this scope problem.

My account leads me to predict that the bound and indefinite readings should extend to clausal adjuncts other than *if*-clauses. To borrow Haegeman's terminology: central adverbial clauses should allow a bound reading, while peripheral adverbial clauses should allow an indefinite reading. I give one example where this prediction seems to be borne out, but a more systematic investigation is needed for me to draw any firm conclusions.

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