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Two types of reverse sluicing in English:

Focusing on discourse

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Introduction

Sluicing and reverse sluicing



Canonical sluicing in English (Hankamer and Sag 1976; Chung et al. 1995; Merchant 2001)

- (1) Lois was talking (**to someone**), but I don't know who.
- _ _ _ _ _
 ANTECEDENT

CORRELATE
REMNANT

Sentential interpretation and form-function mismatch

- (2) Kim likes someone, but I don't know who.
 = '... I don't know who Kim likes.' (Sag and Nykiel 2011: 189-190)

Reverse sluicing in English (i.a., Giannakidou and Merchant 1998; Ha 2008; Lipták 2012)

- Differing in the position of the antecedent

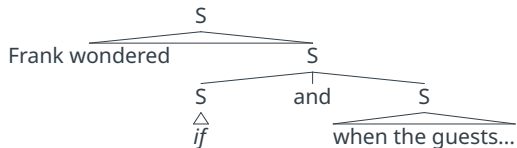
- (3) a. The homeowner wasn't sure **why**, but his house had been snuck into the previous night.
 (= '... **why** his house had been... ') (Gullifer 2004: 2)
- b. Frank wondered **if** and when the guests would arrive.
 (= '... **if** the guests... and *when* the guests... ') (Giannakidou and Merchant 1998: 249)

Research questions

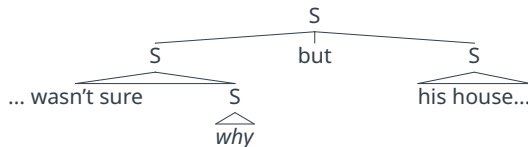


Different structures, inconsistent previous analyses

- (4) a. **Coordinated reverse sluicing** (structure by Giannakidou and Merchant 1998)



- b. **Non-coordinated reverse sluicing** (adapted from canonical sluicing structure by Merchant 2001)



Research questions

- Are these two have any differences in their usage patterns? If so, different how? (i.e., licensing condition, sentential interpretation)
- How about their syntactic structure and form-function mismatch?

Key properties

Canonical and reverse sluicing: Similarities



Surface anaphor and overt linguistic antecedent (Hankamer and Sag 1976)

- (5) a. A: Someone's just been shot.
B: Yeah, I wonder *who*.
- b. [A produces a gun, points it offstage and fires, whereupon a scream is heard]
B: #Jesus, I wonder *who*.

Remnant: [QUE +] feature (i.a., Merchant 2001):

- (6) a. Anne invited someone, but I don't know *who*_[QUE+]. (Merchant 2001: 53)
b. I don't know *who*_[QUE+], but Anne invited someone.
- (7) a. It's not clear *if*_[QUE+] or when the police will arrest the demonstrators.
b. *I didn't remember *that*_[QUE-] or when Jack got married. (Giannakidou and Merchant 1998: 250)

Canonical and reverse sluicing: Differences



Overt and covert correlate

(8) Canonical sluicing

- a. She's reading. I can't imagine *what*. [sprouting]
 b. She's reading *something*. I can't imagine *what*. (Chung et al. 1995: 4) [merger]

(9) Reverse sluicing

- a. I can't imagine *what*, but she's reading (something). [merger/sprouting]
 b. I don't know **if** or ***(when)** she will come. [merger/*sprouting]

Syntactic distribution

- (10) a. She's reading. I can't imagine *what*. (Chung et al. 1995: 4)
 b. I can't imagine *what*, but she's reading.
- (11) a. A: She's reading. B: *What?* [canonical]
 b. A: **What?* B: She's reading. [non-coordinated reverse]
- (12) a. He wondered *whether* or *which day* the guests would arrive. (Giannakidou and Merchant 1998: 238)
 b. A: The guests would arrive next week.
 B: **Whether* and *which day* would they arrive? [coordinated reverse]

Canonical and reverse sluicing: Differences (Cont'd)



Syntactic categories, grammatical functions, and restrictions

- (13) Non-coordinated reverse sluicing: Restrictions on remnant
 ⇒ All grammatical functions and *wh*-words, but not Cs
- You can't imagine *what/why/how fast/with whom*, but he's writing *something*. (Ross 1969: 252)
 - *I don't know *whether/if*, but Susan hit Johnny. (Cho 2014: 26, adapted)
- (14) Coordinated reverse sluicing: Restrictions on correlate...?
 ⇒ Only adjunct *wh*-words (generalization & data from Giannakidou and Merchant 1998: 238-240)
- *Lucy was wondering *whether* and **who** might come to her party. [**subject*]
 - *I can't remember *whether* or **which patient** he had bathed/shaved. [**object*]
 - Frank wondered *whether* and **which day** the guests would arrive. [adjunct]
- (15) **New data!**
- "We want to create a group chain that will be branded with the company's image, track how many people are involved in the volunteer efforts, how many hours they volunteered, and *whether* and **how much money** was raised," Lee said. [subject; COCA 2009 NEWS]
 - Irish girls peeled apples, roasted nuts, unraveled yarn, stared into mirrors, [...], and played with fire to find out *whether* and **whom** they would marry. [object; COCA 2001 MAG]

Semantic and pragmatic properties



Pragmatic focus (c.f., Merchant 2001)

- (16) a. I don't know **WHO**, but John met **SOMEONE**.
 b. *I don't know **WHO**, but **JOHN** met someone.
- (17) a. The journalists want to know **IF** and **WHEN** the suspect will make a statement. (Ha 2008: 3)
 b. *The journalists want to know **IF** and when the suspect **WILL** make a statement.

Sentential interpretation and parallelism (Merchant 2001: 30; in **most** cases)

- (18) Abby called Ben an idiot, but I don't know **who else**.
 ~> ... but I don't know **who else** ⟨she called an idiot / #she insulted⟩.
- (19) a. I don't know **who**, but someone called Ben an idiot.
 ~> I don't know *who* ⟨called Ben an idiot / #insulted Ben⟩, but ...
 b. The question is not **if**, but when Abby called Ben an idiot.
 ~> The question is not *if* ⟨Abby called Ben an idiot / #Abby insulted Ben⟩ but ...

Previous analyses

Two previous analyses



Due to the lack of consensus, previous analyses vary from each other:

Syntactic approach

- **LF-copying analysis** (Giannakidou and Merchant 1998)
- **Rignt-Node-Raising analysis** (Ha 2008)
- Other possible candidates:
PF-deletion analysis (Ellipsis, Merchant 2001), Structure-sharing analysis (Citko and Gračanin-Yüksek 2013)

Semantic approach

- **Semantic e-GIVENness** (Merchant 2001)

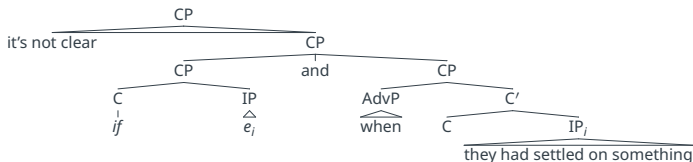
LF-copying analysis



Anaphoric null *e* analysis by Chung et al. (1995):

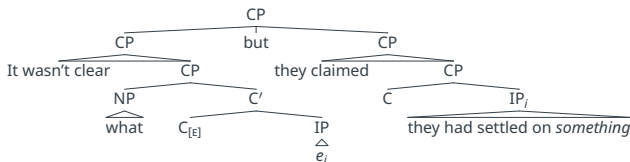
- (20) John met someone_{*i*}, but I don't know *who* *e_i*.
 $\llbracket e \rrbracket = \text{John met } t_{\text{who}}$

- (21) **Coordinated reverse sluicing** (Giannakidou and Merchant 1998)
 It's not clear *if* *e_i* **or** *when* the police will arrest the demonstrators_{*i*}.



$\llbracket e \rrbracket = \text{they had settled on something}$

- (22) **Non-coordinated reverse sluicing** (adapted from Chung et al. 1995: 13-14)
 It wasn't clear *what* *e_i*, **but** they claimed they had settled on something_{*i*}.



$\llbracket e \rrbracket = \text{they had settled on } t_{\text{what}}$

LF-copying analysis: Empirical challenges



Coordinated reverse sluicing: Argument correlates

- Giannakidou and Merchant (1998: 240) claim coordinated reverse sluicing **must** take an adjunct remnant (or, must be sprouting) to support their analysis.

(23) Counterexamples

- [...] , and we're in the process of trying to gather the facts as a prelude to determine **whether** and **what discipline** is appropriate. [SUBJ; COCA 2017 MAG]
 ⇒ determine [_{CP} ***whether** is appropriate] and [_{CP} **what discipline** is appropriate]
- The unified Germany may, in exercising its unrestricted sovereignty, decide freely and by itself **if** and **which alliance** it wants to be a member of. [PP COMP; COCA 1990 NEWS]
 ⇒ ... decide [_{CP} ***if** ⟨it wants to be a member of⟩] and [_{CP} **which alliance** it wants to be a member of]

LF-copying analysis: Empirical challenges (Cont'd)



Cataphoric *e* and the Backward Anaphora Constraint:

- (24) Backward Anaphora Constraint (BAC) (BAC; Langacker 1969; summarized in Ha 2008: 122)
An anaphora preceding its antecedent needs to be contained in **a subordinate clause**.

Other cataphora in subordinated clause (c.f., Ha 2008; Lipták 2012)

- (25) a. Because Jeff did e_i , his children had *to go to church last Sunday_i*.
b. *Jeff did e_i and his children had *to go to church last Sunday_i*, too. (VP ellipsis, Ha 2008: 122)

Non-subordinated null *e*

- (26) a. It's not clear *if* e_i or when *the police will arrest the demonstrators_i*.
b. It wasn't clear *what* e_i , but they claimed they had settled on *something_i*.

Right-Node-Raising analysis

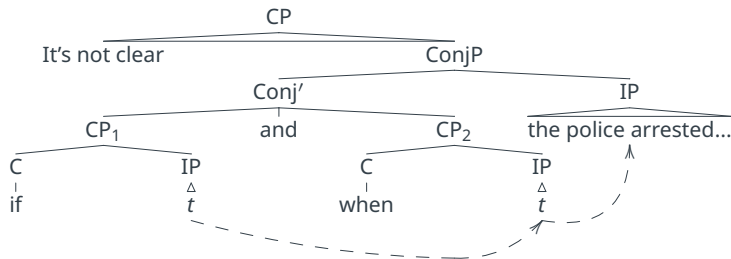


The Right-Node-Raising (RNR) analysis assumes that...

- i) The IP of the antecedent originates in the first CP, then
- ii) it moves to the IP position of the second CP, and finally
- iii) it gets extraposed outside the two CPs (Ha 2008):

Then, it successfully predicts English coordinated reverse sluicing:

(27) It's not clear [_{ConjP} [_{ConjP} [_{CP} *if* t_i] and [_{CP} *when* t_i] [_{IP} the police arrested the demonstrators_j]].



Right-Node-Raising analysis: Empirical challenge



Non-coordinated reverse sluicing with an **argument** remnant

(28) I don't know exactly *what*, but he ate something bad.

a. **Case 1: Underlier matching antecedent**

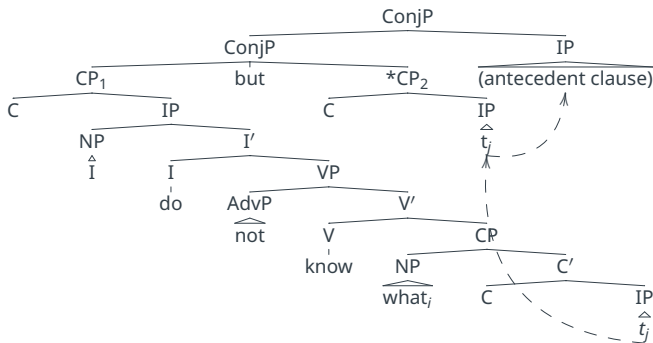
I don't know exactly [_{CP₁} **what*_{*i*} ⟨he ate *t_i* *something bad*⟩_{*i*}], but

[_{CP₂} ⟨he ate *t_i* *something bad*⟩_{*i*}] he ate *t_i* *something bad*_{*j*}.

b. **Case 2: Underlier matching elided materials**

I don't know exactly [_{CP₁} *what*_{*i*} ⟨he ate *t_i*⟩], [_{CP₂} but ⟨he ate *t_i*⟩] he ate *t_i*. (≠ he ate something bad)

(29)



Parallelism and absence of syntactic structure to copy



Reconstruction may not syntactic

(30) a. **Polarity mismatch?**

All of us will die some day. It is not the matter of **if**, but *when*.

(= 'it is **not** the matter of **if** ⟨we will die⟩ but ⟨it is (?**not**) the matter of⟩ *when* we will die')

b. **NP antecedent**

British authorities warning ever since 9/11 that a terrorist attack on British soil is not a question of **if** but *when*.

(= '... not a question of $\left\{ \begin{array}{c} \text{if} \\ \text{but } \textit{when} \end{array} \right\}$ they attack on British soil')

Then, neither of the two syntactic approaches can account for the linguistic properties of the constructions in question.

Semantic approach



Licensing condition and *e*-GIVENNESS (Merchant 2001)

- (31) *e*-GIVENNESS
 An expression *E* counts as *e*-GIVEN iff *E* has a salient antecedent *A* and, modulo \exists -type shifting,
- a. *A* entails *F-clo*(*E*) and
 - b. *E* entails *F-clo*(*A*)
- (ex) She is eating [*something*]_F, but I don't know [*what*]_F ⟨she is eating⟩.
- a. $F\text{-clo}(A) = F\text{-clo}(\exists x.\text{eat}(s, x)) = \exists x.\text{eat}(s, x)$
 - b. $F\text{-clo}(E) = F\text{-clo}(\lambda x.\text{eat}(s, x)) = \exists x.\text{eat}(s, x)$
- ∴ *A* entails *F-clo*(*E*), and *E* entails *F-clo*(*A*) ⇒ **mutual entailment**

Licensing condition and *e-GIVENNESS* (Merchant 2001) (Cont'd)



Non-coordinated reverse sluicing ✓

(32) I don't know [*what*]_F ⟨she is eating⟩, but she is eating [*something*]_F.

a. $F\text{-clo}(E) = F\text{-clo}(\lambda x.\text{eat}(s, x)) = \exists x.\text{eat}(s, x)$

b. $F\text{-clo}(A) = F\text{-clo}(\exists x.\text{eat}(s, x)) = \exists x.\text{eat}(s, x)$

∴ A entails $F\text{-clo}(E)$, and E entails $F\text{-clo}(A) \Rightarrow$ **mutual entailment**

Coordinated reverse sluicing ✗

- Type mismatch
- No mutual entailment ('*if/whether* p' $\nVdash p$)

(33) I don't know *if* ⟨John will come⟩ or [*when*]_F John will come.

a. $F\text{-clo}(A) = F\text{-clo}(\exists t.\text{come}(s) \ \& \ at(t)) = \exists t.\text{come}(s) \ \& \ at(t)$

b. $F\text{-clo}(E) = *F\text{-clo}(\{\text{come}(s), \neg\text{come}(s)\})$

∴ A does not entail $F\text{-clo}(E)$, and E does not entail $F\text{-clo}(A) \Rightarrow$ **no mutual entailment**

Discussion

Syntactic parallelism and restriction?



- **No strict structural/semantic parallelism** (cf., Culicover and Jackendoff 2005; Nykiel and Kim 2022)

(34) Our goal should be regime change. The question is not *whether*, but *how and when*.
 = '... whether ⟨#our goal should be regime change⟩, but how ⟨our goal ...⟩.'

- **Restriction: No argument remnant?** (cf., Giannakidou and Merchant 1998: 239):

(35) *Lucy was wondering *whether* and *who* might come to her party.

(36) **Counterexamples**

- We had watched and fretted almost as soon as the leaves dropped in early winter to see **whether** and **how many buds** were beginning to form. [SUBJ; COCA 2000 NEWS]
- I was wondering **if** and **where** you were planning to maybe visit with the president and his family [...], to offer some additional support? [VP COMP; COCA 1998 SPOK]

A revised licensing condition for Coordinated reverse sluicing



New data!

- Pragmatic restriction

- | | | | | |
|------|----|--|-------------------------|------------------------|
| (37) | a. | It's clear <i>if</i> and <u>when she will come.</u> | ⊨ she will come (p) | COMMITMENT to p |
| | b. | I wonder <i>if</i> and <u>when she will come.</u> | ⊨ she will come (p) | No COMMITMENT to p |
| | c. | *I doubt <i>if</i> and <u>when she will come.</u> | ⊨ she will come (p) | COMMITMENT to $\neg p$ |

A revised licensing condition for Coordinated reverse sluicing (Cont'd)



Given this, I propose one of the possible licensing conditions for coordinated reverse sluicing:

(38) **Licensing condition of coordinated reverse sluicing:**

Coordinated reverse sluicing can be licensed in embedded environment *iff*,
for a proposition p presupposed/entailed by the antecedent,
the attitude-bearer does not make a commitment to $\neg p$.

Example

(39) We don't know *if* or when John will come.

- a. Antecedent = *when John will come*
 - b. *when John will come* \models John will come (P)
 - c. the attitude bearer 'we' do not make a commitment to $\neg P$
- \Rightarrow Licensing condition ✓

A discourse-based analysis

A non-derivational, discourse-based approach

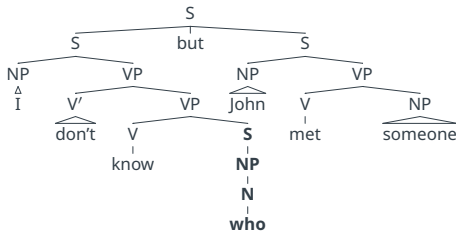


A direct-interpretation approach

- Adopts basic external structures from previous analyses (cf., Chung et al. 1995; Giannakidou and Merchant 1998; Merchant 2001)
- No underlying structure
- **XP directly projects to a S-level expression** (based on *hd-frag-cxt*; Ginzburg and Sag 2000)
- Pragmatic resolution

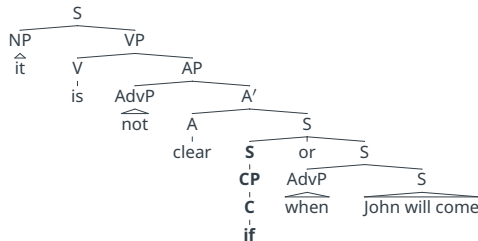
(40) a. Non-coordinated Reverse Sluicing

I don't know *who*, but John met someone.



b. Coordinated Reverse Sluicing

I wonder if and when John will come.



No syntactic underlier



Focusing on discourse: Meaning of questions on DGB (Ginzburg and Sag 2000)

- (41)
- a. DGB (Dialogue Game Board): a set of attributes recording contextual parameters in the ongoing discourse
 - b. MAX-QUD (MAXimal Question-under-Discussion): the most salient discussable question in the given context (i.e., current discourse topic)
 - c. SAL-UTT (SALient-UTterance): the (sub)utterance which receives the widest scope within MAX-QUD (i.e., focused material)

$$\left[\begin{array}{c} \text{DGB} \\ \left[\begin{array}{c} \text{MAX-QUD} \quad \dots \\ \text{SAL-UTT} \quad \dots \end{array} \right] \end{array} \right]$$

Ex. Canonical *wh*-question

- (42) $[Who]_F$ did you meet?

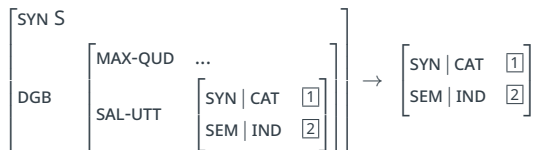
$$\left[\begin{array}{c} \text{FORM} \quad \langle \text{Who did you meet?} \rangle \\ \text{DGB} \left[\begin{array}{c} \text{MAX-QUD} \quad \lambda x. \text{meet}(\text{you}, x) \\ \text{SAL-UTT} \left[\begin{array}{c} \text{SYN} \mid \text{CAT} \quad \text{NP} \\ \text{SEM} \left[\begin{array}{c} \text{IND} \quad i \\ \text{PARAM} \quad \textit{person} \end{array} \right] \end{array} \right] \end{array} \right] \end{array} \right]$$

No syntactic underlier (Cont'd)



No derivation: No underlying structure, no structural parallelism (cf., Construction Grammar; see, among many others, Ginzburg and Sag 2000; Goldberg 2006)

(43) **Head-Fragment Construction** (*hd-frag-cxt*; i.e., Kim 2015: 279)

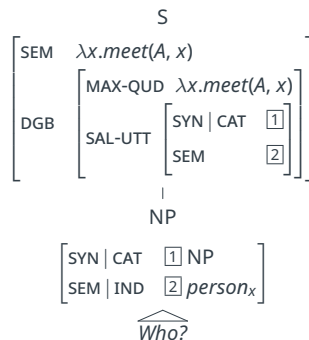


(44) **Canonical sluicing**

A: I met someone yesterday.

B: I wonder [*who*]_F. / [*Who?*]_F

- a. ANTECEDENT: $\exists x.meet(A, x)$
- b. SAL-UTT: *who* [NP; x]
- c. MAX-QUD: $\lambda x.meet(A, x)$



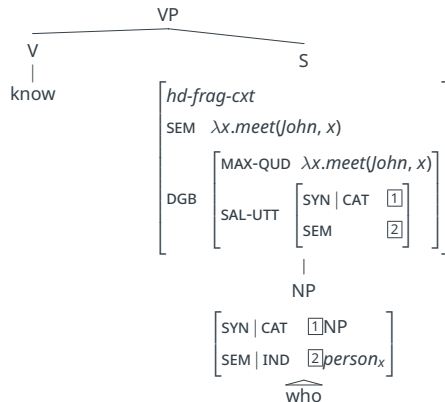
Application: Non-derivational, discourse-based approach



Non-coordinated reverse sluicing*

(45) I don't know *who*, but John met [*someone*]_F.

- a. ANTECEDENT: $\exists x.meet(j, x)$
- b. SAL-UTT: $person_x[NP; x]$
- c. MAX-QUD: $\lambda x.meet(John, x)$



*The analysis parallels that of its canonical sluicing counterpart (e.g., *John met someone, but I don't know who.*; among others, Ginzburg and Sag 2000; Sag and Nykiel 2011; Kim 2015)

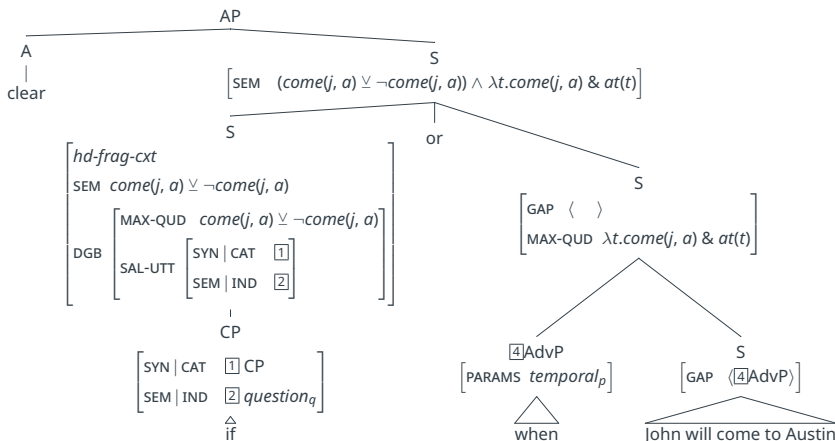
Application: Non-derivational, discourse-based approach (Cont'd)



Coordinated reverse sluicing

(46) It's not clear *if* or $[[when]_F \text{ John will come to Austin}]_A$.

- a. ANTECEDENT: $\lambda t. come(j, a) \ \& \ at(t) \models come(j, a)$
- b. SAL-UTT: *if* [CP; *question*]
- c. MAX-QUD: $\lambda P. P \vee \neg P(come(j, a)) = come(j, a) \vee \neg come(j, a)$ (= meaning of '*if*')



Problems to solve

Future study: Reversed polarity in sluicing



Licensing condition: Counterexample

- (47) a. *I **doubt** *if* and *when she will come*. \models she will **not** come.
 b. I have **a doubt** about *if* and *when she will come*. \models !she will **not** come. (Beavers p.c.)

Polarity mismatch

- The effect of [*not ... but ...*] constructions (Toosarvandani 2012; Lee 2017)

- (48) All of us will die some day. It is **not** the matter of *if*, but *when*.
 a. It is **not** the matter of *if*, but *when*.
 (= 'it is **not** the matter of *if* we will die, **but** it is ***(not)** the matter of *when* we will die')
 b. It is **not only** the matter of *if*, **but also** *when*.
 (= 'it is **not** the matter of *if* we will die, **but also** it is ***(not)** the matter of *when* we will die')
 c. It is **not** the matter of *if*, and *when*.
 (= 'it is **not** the matter of *if* we will die, **and** it is ***(not)** the matter of *when* we will die')
- (49) I don't think that California will comply, but I don't know *why* (Kroll 2019: 3)
 (= '... IDK *why* California will **not** comply.')

Summary

Summary



- The study differentiates between coordinated and non-coordinated reverse sluicing, noting that although they are syntactically distinct, they behave similarly in interpretation.
- It addresses three central issues concerning ellipsis—licensing, syntax, and semantics—through both theoretical and empirical analysis.
- The study argues that derivational accounts fail to adequately capture the structural asymmetry and broken semantic parallelism found in non-coordinated reverse sluicing.
- The study proposes that reverse sluicing lacks syntactic structure at the ellipsis site and derives its interpretation from discourse context, adopting a non-derivational framework that allows phrasal expressions to project to the sentential level under proper discourse conditions.

Appendix

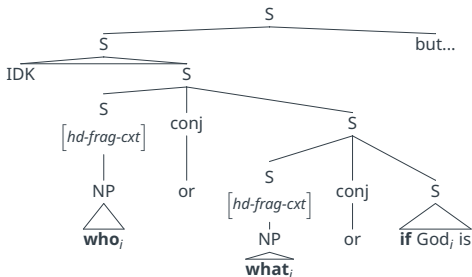
Appendix



- Naturally occurring '*wh* & *if/whether*' strings

⇒ Coordinated *wh*-questions (cf., Park and Kim 2025)

- (50) a. He plans research to find out **how** and **if** he can identify the characteristics of leaders among range animals. (COCA 2000 ACAD)
- b. That is, one can say, "I don't know **who** or **what** or **if** God is, but something happened in my life. [...]" (COCA 2009 MAG)
- (51) I don't know **who** or **what** or **if** God is, but ...





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