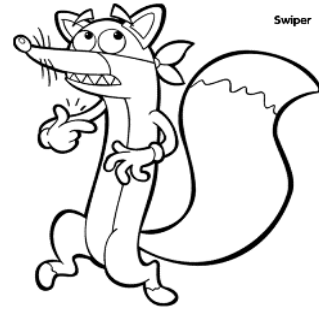


When a complement PP goes missing: a study on the licensing of Swiping

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1. Introduction

(1) *Our Claim*

- a. There are two types of movement: movement that leaves a copy and movement that does not.
- b. Some movement like **PP Shift** does not leave a copy.
(See Chomsky 1995; Lasnik 1998, 1999a; Fox 1999 for argument that A-movement does not leave a copy.¹)

(2) *PP shift*

- a. John talked [_{PP} to someone] yesterday.
- b. John talked t_{PP} yesterday [_{PP} to someone].

(3) We claim that PP Shift does not leave a copy, based on data of **Swiping** (Sluiced Wh-phrase Inversion with Prepositions In Northern Germanic: Merchant 2002).

(4) *Swiping*

She fixed it, but I don't remember *what with*.

(5) *Observations*

- a. A complement PP *does not* license Swiping. (6a)
(Rosen 1976; **Generalization (A-iii)**)
- b. A complement PP licenses Swiping when it undergoes PP Shift. (6b)²

- (6) a. *John talked [_{PP} to someone], but I don't know *who to*.
- b. ?John talked t_{PP} yesterday [_{PP} to someone], but I don't know *who to*.

(7) Examining the properties of Swiping and the contrast in (6) leads us to the conclusion that **PP Shift does not leave a copy**.

¹ Lasnik's (1998) argument that shows A-movement does not leave a copy

- (i) a. Scope reconstruction is impossible with A-movement.
- b. The apparent "Quantifier Lowering" effect in (iib) (May 1977) is due to the "unknown" reading of the indefinite subject.
(cf. Hornstein 2001, 2003; Boeckx 2001; Nevins and Anand 2003, among others)
- (ii) a. Every coin is 3% likely to land heads. (every>likely, *likely>every)
- b. Some politician is likely to address John's constituency. (some>likely, likely>some)

² The "*" and "?" indicate relative judgment between these sentences. The judgment is subtle and throughout the study, we only focus on the judgment by people who consistently observe the contrast in (6).

2. Background: English Swiping

2.1. Properties of Swiping

(8) *Three Generalizations on the licensing of Swiping*

- (A) (i) Swiping is best with no antecedent PP.
(ii) Swiping is possible with an adjunct PP antecedent.
(iii) Swiping is not possible with a complement PP antecedent. (Rosen 1976)
- (B) Swiping only targets minimal wh-phrases. (Merchant 2002; van Craenenbroeck 2004)
- (C) A swiped preposition bears stress. (*ibid.*)

(9) **Generalization (A)**

- (i) Swiping is best with no antecedent PP.
(ii) Swiping is possible with an adjunct PP antecedent.
(iii) Swiping is not possible with a complement PP antecedent.

(10) **Generalization (A-iii)** is crucial for the contrast in (6).

(See **Appendix 1** for the other two Generalizations)

(11) a. *No antecedent PP (adjunct)*

John fixed it, but I don't remember what with.

b. *No antecedent PP (implicit argument)*

John was talking, but I don't remember who to.

c. *Adjunct PP antecedent*

(?)John fixed it *with something*, but I don't remember what with.

d. *Complement PP antecedent*

*John talked *to someone*, but I don't remember who to.

2.2. Merchant (2002) on Generalization (A)

(12) **Givenness Condition**

Swiping is licensed only if the PP is not “given” in the antecedent of IP-deletion (in terms of “Avoid F” in (13)).

(13) *Avoid F* (Merchant 2002 (based on Schwarzschild 1999))

The content of the focused P should not be given.

(14) a. Complement PP antecedents are “given”

(11d) = AvoidF violation

b. Adjunct PP antecedents are not “given” *in the lower VP segment*.

(11c) = AvoidF ok if the lower VP can be the antecedent of IP-deletion

- (15) *Swiping with an adjunct antecedent* (11c)
 John [VP [VP **t_{John} fixed it**] with something],
 but I don't remember [CP [PP what with] [~~IP John fixed it~~ [~~PP with what~~]].
- (16) a. The lower VP segment has a subject trace in it.
 (VP-internal Subject Hypothesis:
 Fukui and Speas 1986; Kitagawa 1986; Kuroda 1988; Koopman and Sportiche 1991)
 b. The lower VP segment and the IP satisfy **semantic parallelism**.
 (Merchant 2001a)
 c. The lower VP segment can be the antecedent of IP-deletion.
 (See also: Hornstein 1994)
- (17) *Summary of Merchant's (2002) analysis*
 Swiping is impossible if the PP is "given" in the antecedent of the
 IP-deletion. (**Giverness Condition**)
 (See **Appendix 2** for his full analysis of Swiping.
 See **Appendix 3** for an alternative analysis.)

3. A problem with the previous generalization

3.1. *Data of PP Shift*

- (18) *Observation I*
 Swiping with complement PPs is possible when the complement PP
 undergoes PP Shift. (A counterexample to **Generalization (A-iii)**)
- (19) a. *[_{IP} John [VP t_{John} talked [_{PP} to someone]] yesterday],
 but I don't remember who to.
 b. ?[_{IP} John [VP t_{John} talked **t_{PP}**] yesterday] [**PP to someone**],
 but I don't remember who to.
- (20) **Generalization (A-iii)**
 Swiping is not possible with a complement PP antecedent.
- (21) *Questions:*
 a. How can PP Shift license Swiping with complement PPs?
 b. Do we have to abandon Merchant's (2002) **Giverness Condition**?
- (22) **Revised Generalization (A)**
 Swiping is licensed when
 (i) there is no antecedent PP, *or*
 (ii) the antecedent PP is an adjunct, *or*
 (iii) the antecedent PP is a complement and undergoes PP Shift.

- (23) *The Shifted PP in (19) as a complement PP*³
- Do-so* substitution test (Lakoff and Ross 1976)
 - PP Fronting
- (24) *Do-so* cannot take the verb without the PP.
- John talked [_{PP} to Mary]. Bill did so, too.
 - *?John talked [_{PP} to Mary]. Bill did so [_{PP} to Susan].
 - John talked [_{PP} in the room]. Bill did so, too.
 - John talked [_{PP} in the room]. Bill did so [_{PP} in the hallway].
- (25) Fronted *to*-PP behaves like complement NPs rather than adjunct PPs.
- ?To Mary, John talked. (only with topicalized interpretation)
 - ?Mary, John likes. (only with topicalized interpretation)
 - In the room, John talked. (optional topicalized interpretation)

3.2. *Explanation*

- (26) **Giverness Condition:** Swiping is impossible when the PP is “given” in the antecedent of the IP-deletion.

(27) *A Speculation*
 PP Shift makes the PP “not given” in the antecedent of IP-deletion.

- (28) *The intuition behind (27)*
- PP Shift put the PP outside the VP.
 - The PP is “not given” in the lower VP segment.
- (29) [_{IP} John [_{VP} **t_{John}** **talked** _{PP}_] yesterday] [_{PP} to someone], but I don't know [_{CP} who₀+to [_{IP} John [_{VP} talked [_{PP} to who]]].
- (30) *Question:* How can we account for this speculation?
- (31) *Assumptions*
- PP Shift does not leave a copy.**
 - If it does, the PP *to someone* would still be “given” inside the lower VP, as in (32)).

³ Evidence for the complementhood also comes from the fact that the PP in (iia) shows a relative tolerance to wh-island compared to the adjunct PP in (iib). This parallels the well-known argument-adjunct asymmetry in extraction from wh-island shown in (i) (Huang 1982).

- (i) a. ??What₁ did John wonder whether Bill fixed t₁?
 b. *How₁ did John wonder whether Bill fixed the car t₁?
 (ii) a. ??[To whom]₁ did John wonder whether Bill talked t₁?
 b. *[With whom]₁ did John wonder whether Bill danced t₁?

- (32) [_{IP} John [_{VP} t_{John} talked [_{PP} to someone]] yesterday] [_{PP} to someone],
but I don't know [_{CP} who+to [_{IP} John [_{VP} talked [_{PP} to who]]].

(33) *The Upshot*
If PP Shift does not leave a copy, it follows that Swiping with Shifted complement PPs satisfies Merchant's (2002) **Givenness Condition**.

3.3. *PP Shift does not leave a copy*

(34) *Independent support for our claim: PP Shift does not leave a copy*
a. Scope reconstruction^{4,5}
b. Absence of contraction blocking

- (35) *Scope reconstruction* (Jeff Lidz p.c.)
a. Someone gave every book₁ [_{PP} to its₁ prize winning author].
(every>some, some>every)
b. Someone gave every book₁ t_{PP} yesterday [_{PP} to its₁ prize winning author].
(every>some, ??some>every)
- (36) A trace of PP Shift does not block contraction. (Lasnik 1984)⁶
a. John **is** in the room now.
b. John's in the room.
c. John's t_{PP} now [_{PP} in the room].
d. I don't know where₁ John **is** t₁.
e. *I don't know where₁ John's t₁.
f. *I don't know where₁ John's t₁ now.

⁴ PP Shift and A-movement shows different behaviors in terms of binding reconstruction. This raises a question on the treatment of Binding Condition A. PP Shift does not show binding reconstruction, unlike Heavy NP Shift. (Phillips 1996)

- (i) a. I gave money [to the boys who had helped me clean the yard]₁ for themselves₁.
b. *I gave money _ for themselves₁ [to the boys who had helped me clean the yard]₁.
(ii) a. I described [the victim whose sight had been impaired by the explosion]₁ to himself₁.
b. I described _ to himself₁ [the victim whose sight had been impaired by the explosion]₁

(ib) suggests that Binding Condition A is not satisfied at the base-structure, which is counterevidence to the claim that Condition A is an "anywhere" condition. On the other hand, data like (iii) show that A-movement shows binding reconstruction, which shows that Condition A is not an LF condition, either, under the assumption A-movement does not leave a copy.

(iii) [The picture of himself₁] seemed to John₁ to be flattering.

⁵ There is another contrast between PP Shift and Heavy NP Shift: PP Shift is possible even when the PP is not heavy. (Howard Lasnik p.c.)

- (i) a. *I described _ to Mary [the victim].
b. I gave money _ yesterday [to the boys].

⁶ The assumption here and the wh-movement example in (39) is that the phonologically unrealized copy of wh-phrase (*to whom* in (39) and *where* in (36)) cannot undergo PP Shift.

- (37) *Generalizations on contraction (the contrast between (36b, c) and (36e, f))*
- The clitic 's must be dependent on a morphologically realized category on its right. (Bresnan 1971; Boeckx 2000)
 - A wh-trace blocks contraction. (e.g. *wanna*-contraction: Lightfoot 1976)
 - A trace of PP Shift does not block contraction.
- (38) (37c) is compatible with our claim that **PP Shift does not leave a copy**.
- (39) *Further contrast: Wh-movement does not license Swiping unlike PP Shift.*
 *I wonder [_{PP} to whom] John [_{VP} talked [_{PP} to whom]], but you know who to.
- (40) (39) supports our argument
- PP Shift licenses Swiping because it does not leave a copy.
 - Prediction*: Movement that leaves a copy does not license Swiping.
 - Wh-movement leaves a copy** in the standard assumption.
(Chomsky 1993, 1995, and subsequent works)
 - Therefore, Wh-movement does not license Swiping.

- (41) *Interim conclusion*: There are two types of movement.
- Movement that leaves a copy (e.g. wh-movement)
 - Movement that does not leave a copy (e.g. A-movement, PP Shift)

4. Extensions: Gapping and Pseudo-gapping

4.1. Swiping and Gapping/Pseudo-gapping

- (42) *Observation II*
 Remnant complement PPs left by Gapping/Pseudo-gapping license Swiping.
 (Another counterexample to **Generalization (A-iii)**)
- (43)
- Complement PP without Gapping/Pseudo-gapping*
 *John talked to Mary, and Bill talked **to someone else**.
 I don't remember who to.
 - Gapping*
 ?John talked to Mary, and Bill ~~talked~~ **to someone else**.
 I don't remember who to.
 - Pseudo-gapping*
 ?John talked to Mary, and Bill did **to someone else**.
 I don't remember who to.
- (44) *A Speculation*
 Gapping/Pseudo-gapping makes a complement PP “not given”.

- (45) a. The speculation in (44) is compatible with the “movement and deletion” approaches to Gapping (46) and Pseudogapping (48).
 b. Gapping/Pseudo-gapping remnants undergo “**movement that does not leave a copy.**”
- (46) *The “Rightward movement and deletion” approach to Gapping*
 (Jayaseelan 1990; Lasnik and Saito 1991; Yoshida 2005, 2006: cf. Johnson 1994; Lin 2000)
 In (47), the gapping remnant undergoes rightward movement to the VP/IP-adjoined position (depending on the analysis).
- (47) Mary talked to Bill and Susan [_{IP/VP} [_{VP} ~~talked t_i~~] [_{to Harry}]₁].
- (48) *The “A-movement and deletion” approach to Pseudo-gapping*
 a. In (49), the Pseudo-gapping remnant undergoes A-movement to [_{Spec, Agr_o}].
 b. PP remnants undergo the same type of movement, too.
 (Lasnik 1999b)
- (49) Mary hasn’t dated Bill, but she has [_{Agr_{oP}} Harry₁ Agr_o [_{VP} ~~dated t_i~~]].
- (50) a. In these analyses, Gapping/Pseudo-gapping remnants become “not given” in the lower VP segment.
 b. Any account of Gapping/Pseudo-gapping that does not assume the movement of the remnant would have difficulty accounting for the contrast in (43).

4.2. *P-stranding in Pseudo-gapping*

- (51) Lasnik (1999b): *P-stranding in Pseudo-gapping*
 a. Pseudo-gapping is derived by A-movement.
 b. Pseudo-gapping allows P-stranding in reanalysis environments as passive; Gapping does not allow P-stranding as Heavy NP Shift.
- (52) a. *Pseudo-gapping*
 John **talked about** something and Bill did someone.
 b. *Passive*
 John₁ was **talked about** t₁ by everyone.
 c. *Gapping*
 *John **talked about** something and Bill someone.
 d. *Heavy NP Shift*
 *John **talked about** t₁ yesterday [someone from our department]₁.

- (53) *Prediction under Givenness Condition:*
P-stranding of Pseudogapping and Swiping are incompatible.
- (54) If P is stranded, the content of P is “given” in the lower VP, which violates Givenness Condition. (Merchant 2002; p.c.)
- (55) *The prediction borne out*
- a. *John talked about something and Bill did someone.
I don’t remember who about.
 - b. ?John talked about something and Bill did about someone.
I don’t remember who about.

4.3. Summary

- (56) a. There are two types of movement:
movement that leaves a copy and movement that does not.
- b. PP remnants in both Gapping and Pseudo-gapping undergo movement that **does not** leave a copy.
- (i) PP Shift for Gapping
 - (ii) A-movement for Pseudo-gapping

5. Theoretical Consequences

5.1. On Copy Theory of Movement

- (57) *Remaining problem*
What does it mean for movement not to leave a copy?
Is it compatible with the copy theory of movement?
- (58) Under the copy theory, Move = Copy + Merge
- (59) *Possible solutions:*
- a. Movement that does not leave a copy leaves a trace, and it is not used for calculation of “givenness” and reconstruction. (Fox 1999)
 - b. Movement that does not leave a copy involves a copy deletion process. (Copy + Merge + Delete?)
 - c. Every movement leaves a copy, but some copies (PP shift, A-movement) are never used for calculation of “givenness” and reconstruction.
- (60) *Another potential solution*
Shifted PP and A-moved phrases are actually base-generated in those positions.

- (61) *Counterevidence to (60)*
 a. The constituency tests in **3.1**. ((23): *Do-so* test and the fronting test) show that the *to*-PP in *talk to* is a complement.
 b. When it is moved, it becomes an island. (62b)
- (62) a. Who₁ did you talk [_{PP} to t₁] yesterday?
 b. *Who₁ did you talk t_{PP} yesterday [_{PP} to t₁]?
- (63) *Derived position island* (Wexler and Culicover 1980; Takahashi 1994; Merchant 2001a)
 Wh-movement out of a moved element is not allowed.

5.2. *On covert & string-vacuous PP Shift*

- (64) *Revisiting Observation I*
 In-situ complement PPs do not license Swiping.
- (65) a. *[_{IP} John [_{VP} t_{John} talked [_{PP} to someone]] yesterday], (= (19))
 but I don't remember who to.
 b. ?[_{IP} John [_{VP} t_{John} talked t_{PP}] yesterday] [_{PP} to someone],
 but I don't remember who to.
- (66) Only an overt operation can make the complement PP “not given”.
- (67) *Implication:*
 a. There is no covert PP Shift. *or*
 b. Covert PP Shift does not feed Swiping.
- (68) If (67a) is the case, why is it so?
 (See Fox 2000 on Interface economy; see Fox 2002, 2003 on overt rightward QR)
- (69) a. If (67b) is the case, why so?
 b. It will be compatible with the models that assume the dissociation between PF and LF. (The traditional Y-model by Chomsky and Lasnik 1977; Chomsky 1981, developed in Chomsky 1993, 1995: in contrast to the I-model by Groat and O’Neil 1996)
- (70) *John talked [_{PP} to someone], but I don’t remember who to. (= (11d))
- (71) (70) shows that the PP in this example does not undergo PP Shift of the same kind as in (65b).

- (72) *Implication:*
a. There is no string-vacuous PP Shift. *or*
b. String-vacuous PP Shift does not feed Swiping.
- (73) *Summary:* Only non-string-vacuous overt PP Shift can make a complement PP “not given”.

5.3. *On the nature of PP Shift*

- (74) *Another implication:* PP Shift is not PF-movement.
- (75) ?_{IP} John [_{VP} t_{John} talked t_{PP}] yesterday] [_{PP} to someone], (= (19b))
but I don't remember who to.
- (76) a. If PP Shift is PF-movement, it means that the PP remains in-situ at LF.
b. It would violate **Giverness Condition** (which is presumably an LF constraint).

6. Conclusions

- (77) a. PP Shift, like A-movement, does not leave a copy behind.
b. A complement PP becomes “not given” when it undergoes A-movement or PP Shift.
c. Gapping and Pseudo-gapping remnants undergo movement that does not leave a copy.

Appendix 1: The full properties of Swiping

- (78) **Generalization (A)** (See the data in (11).)
(i) Swiping is best with no antecedent PP.
(ii) Swiping is possible with an adjunct PP antecedent.
(iii) Swiping is not possible with a complement PP antecedent.
- (79) **Generalization (B)**: Swiping only targets minimal wh-phrases.
- (80) a. *Minimal wh-phrases* (e.g. *who*)
Lois was talking but I don't know who to.
b. *Complex wh-phrases* (e.g. *which person*)
*Lois was talking but I don't know which person to.
(van Craenenbroeck 2004)
- (81) **Generalization (C)**: A swiped preposition bears stress.
- (82) Ben was talking, but I don't know {*WHO to/who TO}. (*ibid.*)

Appendix 2: More on Merchant's (2002) analysis

- (83) *Assumption*: PF-deletion approach to Sluicing (Merchant 2001)
- (84) *PF-deletion approach to Sluicing*
John talked to someone but I don't know [_{CP} who₁ [_{IP} ~~John talked to t₁~~]].
- (85) *PF Head-adjunction analysis of Swiping*
[_{PP} P D] → [_{PP} D+P t_D] where wh-phrase = D⁰
- (86) *The derivation*
a. [_{IP} John talked [_{PP} to who]]
b. [_{CP} [_{PP} to **who**] [_{IP} John talked [_{PP} to **who**]]] Wh-movement at Syntax
c. [_{CP} [_{PP} to who] [_{IP} ~~John talked [_{PP} to who]~~]] IP-deletion at PF
d. [_{CP} [_{PP} **who**+to] [_{IP} ~~John talked [_{PP} to who]~~]] Head-adjunction at PF
- (87) *On Generalization (A): Givenness Condition*
- (88) *On Generalization (B)*
a. Minimal wh-phrases are heads: adjunction to P0 *possible*
b. Complex wh-phrases are XPs: adjunction to P0 *impossible*

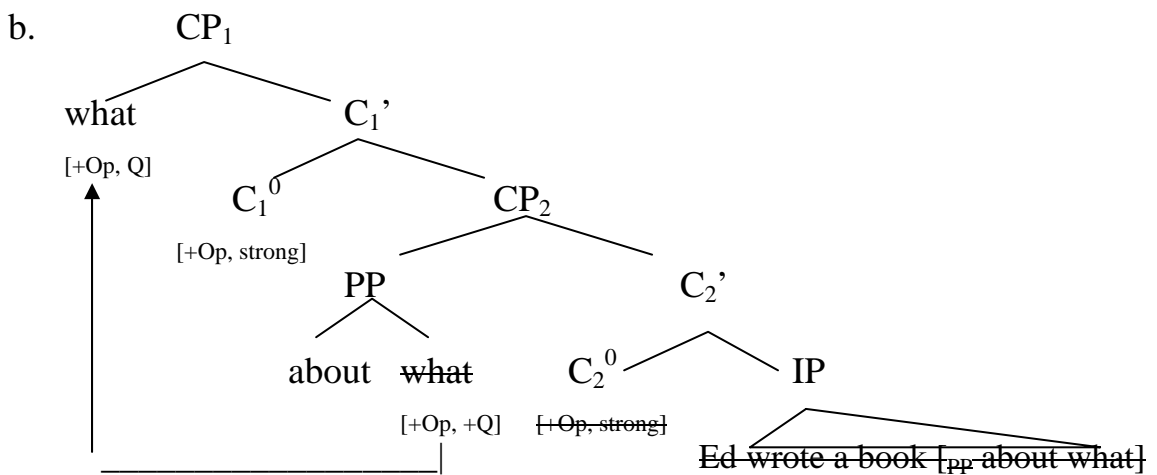
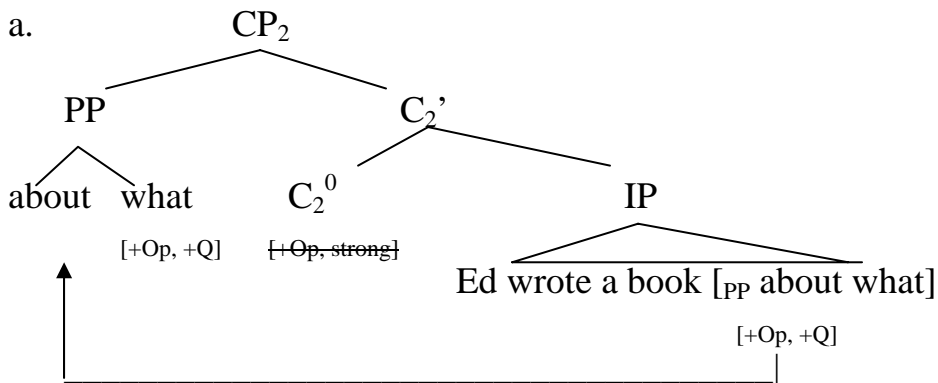
- (89) *On Generalization (C)*
- The prosodic pattern in Swiping is “headfinal”.
 - It is supported by the fact that the wh-phrase bears stress in sluicing.
- (90) *Sluicing*
John talked to someone, but I don’t know WHO.
- (91) *Summary of Merchant’s (2002) analysis*
- Swiping is generated by the head-adjunction of the wh-phrase to the preposition, which occurs after the IP-deletion at PF.
 - Swiping is impossible when the PP is “given” in the antecedent of the IP-deletion. (**Givenness Condition**)

Appendix 3: Van Craenenbroeck’s (2004) Double-CP analysis

A3-1. The analysis

- (92) An alternative approach to Swiping that does not assume **Givenness Condition**.

(93) *The derivation*



A3-2. *Problems of the Double-CP analysis*

- (103) **Problem 1:** The interpretation of “new information” ((95))
Why an adjunct antecedent PP in Swiping is allowed is unclear.
- (104) *Merchant’s account: Givenness Condition*
- (105) **Problem 2:** The ad-hoc nature of the minimal/complex wh distinction
There is no supporting evidence for the assumption in (96).
- (106) *Merchant’s account:* Swiping as head-movement
Only minimal wh-phrases are heads and undergo head-movement.
- (107) **Problem 3:** Non-existence of Swiping in VP-ellipsis
(The criticism to Richards 2001 by Merchant 2002; also applies to van Craenenbroeck 2004)⁷
- a. “Deletion of the PP in the original position at PF” saves the non-uniform chain. (102)
 - b. *An incorrect prediction:* Not only sluicing but also VP-deletion should make Swiping possible.
- (108) *We know who John talked to, but we don’t know [who to] Bill did.⁸
- (109) *Merchant’s account:*
- a. Head-adjunction in Swiping *after* IP-deletion at PF
 - b. Whatever feature triggers/permits Swiping is sensitive to IP-deletion.
- (110) Given the above problems, we follow Merchant’s analysis in this work.

⁷ Richard’s (2001) analysis also involves P-stranding to the intermediate projection.

[_{CP} what₁ C⁰ [_{FP} [PP about t₁]₂ F⁰ [_{IP} ... t₂ ...]]]

⁸ Merchant’s original example is (ia), but this example should be independently excluded by MaxElide (Merchant 2001b) because the Sluicing example (ib) is good in the same environment.

(i) a. *We know when she spoke, but we don’t know [what about] she did.

b. We know when she spoke, but we don’t know [what about].

(ii) MaxElide [definition] (Merchant 2001b)

Let XP be an elided constituent containing an A’-trace

Let YP be a possible target for deletion

YP must not properly contain XP.

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