

# A note on the Swiping/P-Stranding Generalization

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September 13, 2016

## Abstract

This paper is concerned with deriving the generalization that languages with swiping always allow for P-stranding, but not vice versa. First, I show that the Swiping/P-Stranding Generalization cannot be adequately explained by recent ‘subextraction’ approaches to swiping (e.g. Kim 1997, van Craenenbroeck 2004, 2010, Hasegawa 2006, Hartman & Ai 2009, Radford and Iwasaki 2015). Instead, I follow Merchant’s (2002) incorporation analysis of swiping, but propose that this operation only applies in a Spec-Head configuration, i.e. with the *wh*-phrase in Spec-PP. This means that in order to have swiping, a language must independently allow for movement to Spec-PP. However, the availability of this movement step does not necessarily mean that incorporation must take place. In this way, we derive the unidirectionality of the generalization in contrast to competing accounts.

## 1 Introduction

*Swiping* is a variant of sluicing with a PP remnant, in which the order of the preposition and its complement is inverted (1) (e.g. Ross 1969; Rosen 1976; Culicover 1999; Merchant 2002; Nakao et al. 2006; Hartman & Ai 2009; van Craenenbroeck 2010; Radford & Iwasaki 2015).<sup>1</sup>

- (1) a. John left, but I don’t know *who with*.  
b. The police searched the house, but they wouldn’t tell us *what for*.

While swiping has a number of interesting properties, I focus here on one that has received less attention in previous accounts, namely the typological observation that only languages with preposition stranding (P-stranding) permit swiping, but not all P-stranding languages allow swiping. What I argue in this paper is that unidirectionality of this generalization cannot be easily captured by recent accounts, and instead show that it follows from an analysis in which swiping and P-stranding both require an ‘anti-local’ movement step to Spec-PP.

## 2 The Swiping/P-Stranding Generalization

Swiping is exclusively attested in a subset of the Germanic languages. Furthermore, there is a clear link between the possibility to strand a preposition and having swiping in a language. For example, as well as allowing swiping (1), English is also a P-stranding language:

- (2) Who<sub>1</sub> was John talking [<sub>PP</sub> to t<sub>1</sub>] yesterday?

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<sup>1</sup>*Swiping* is an acronym proposed by Merchant (2002:289) that stands for ‘sluicing with intact prepositions in Northern Germanic’.

We find the same correlation in other Germanic languages. Although I cannot give the relevant examples for reasons of space, a summary of Merchant’s (2002) survey is given in Table 1.

	English	Danish	Norwegian	Icelandic	Frisian	Swedish	German	Dutch
P-stranding	✓	✓	✓	✓	✓	✓	✗	✗
Swiping	✓	✓	% <sup>2</sup>	✗	✗	✗	✗	✗

Table 1: Swiping and P-stranding in Germanic languages (Merchant 2002)

What we observe is that swiping is only attested in languages that also allow P-stranding (English, Danish, Norwegian). In languages without P-stranding, such as German and Dutch, swiping is ungrammatical. Thus, we arrive at the following generalization:

- (3) *Swiping/P-Stranding Generalization:*  
If a language has swiping, it also allows P-stranding.

However, it is important to note that this generalization is a unidirectional implication, that is, if a language has P-stranding it does not necessarily have swiping (as can be seen for Icelandic, Frisian and Swedish). In other words, swiping is a sufficient, but not necessary condition for P-stranding. Although this is clearly an important fact for any theory of swiping to derive, we will see that recent approaches fail to do so.

### 3 Previous accounts

#### 3.1 Intermediate stranding

A number of recent analyses give an important role to P-stranding in the derivation of swiping. For example, one type of analysis that we can call the ‘intermediate stranding’ analysis involves movement of the PP to a functional projection below CP but above the ellipsis site, followed by subextraction of the DP (Richards 2001; van Craenenbroeck 2004, 2010; Hartman & Ai 2009; Radford & Iwasaki 2015).<sup>3</sup>

- (4) ... but I don’t know [CP who<sub>1</sub> [C’ C [FP [PP with t<sub>1</sub> ]<sub>2</sub> [F’ F { [TP ... t<sub>2</sub> ... ] } ]]]]
- 
- The diagram shows three arrows originating from the TP ellipsis site and pointing to the PP, the C’ projection, and the CP projection, illustrating the movement of the PP and the subsequent subextraction of the DP.

This account is immediately faced with what Merchant (2002:300) calls *Postal’s Problem*. Postal (1972:213) showed that P-stranding in intermediate ( $\bar{A}$ ) positions is not possible (5).

- (5) \*Who<sub>1</sub> do believe [CP [PP to t<sub>1</sub>] Mary thinks [CP Joan talked t<sub>1</sub> ] ] ?

Thus, it remains to be explained why the derivation in (4) is only possible with sluicing. For example, van Craenenbroeck (2010:64) argues that the ordinarily ungrammatical instance of intermediate stranding in (5) is ‘repaired’ by ellipsis. Whereas ellipsis does seem to repair some locality violations (Ross 1969; Merchant 2001), this is normally explained by the locus of the violation being phonologically deleted and with it some ungrammaticality-inducing diacritic (t\*) (e.g. Lasnik 2001; Fox & Lasnik 2003; Merchant 2008). In the present case, however, the offending portion of structure (the PP) is not contained in the ellipsis site. Thus, if island repair


<sup>2</sup>Merchant (2002:295) reports that half of his Norwegian informants accepted swiping constructions, while the other half did not.

<sup>3</sup> Whereas Hartman & Ai (2009) assume that this is a focus phrase (FocP), van Craenenbroeck (2010) views it as the lower of two recursive CP projections in the left-periphery. Radford & Iwasaki (2015) argue for an even finer decomposition of the left-periphery.

even exists (see [Abels 2011](#); [Barros et al. 2014](#)), it does not seem to be straightforwardly applicable here.<sup>4</sup> For [Hartman & Ai \(2009\)](#), subextraction from Spec-FP is only possible if the PP first moves there to check its focus feature. Since the focus movement is restricted to ellipsis contexts by stipulation, their argument is circular. Finally, it is unclear how this approach can derive the Swiping/P-Stranding Generalization. [Hartman & Ai \(2009:117\)](#) claim that ‘swiping exists only in (a subset of) those languages that allow preposition stranding: Danish, Norwegian, and English. If swiping simply *is* preposition stranding, this particular cross-linguistic distribution is not surprising.’ On the contrary, it is surprising on this view that not all P-stranding languages allow swiping. One could try and find some additional factor that distinguishes between the relevant languages, such as freezing effects or the general availability of an intermediate landing site. However, this evidence does not appear to be forthcoming.

### 3.2 Extraposition

An alternative approach is taken by ‘extraposition’ analyses such as [Kim \(1997\)](#) and [Hasegawa \(2006\)](#). Here, we have a standard sluicing derivation with subsequent extraposition of the remnant PP to a rightward position outside the ellipsis site (6).

- (6) ... but I don’t know  $[_{CP} \text{ who}_1 [_{C'} C_{[E]} \langle [_{TP} \dots t_2 \dots ] \rangle [_{PP} \text{ to } t_1]_2 ]]$
- 

This analysis is also beset with problems. The first is that rightward movement is known to be far more restricted than leftward movement. In particular, extraposition is subject to the *Right Roof Constraint* ([Ross 1967](#)), which on [Sabbagh’s \(2007:351\)](#) definition would be violated by a derivation such as (6). As [Larson \(2012\)](#) points out, this predicts that a swiped PP should not be able to be construed inside an embedded clause, since this derivation would involve violate the clauseboundedness of rightward movement.<sup>5</sup> Such examples do seem to be possible, however:

- (7) John believes that Mary was talking . . .  
but I don’t know  $\text{who}_1 \langle [_{TP} \text{ John believes } [_{CP} \text{ that Mary was talking } t_2 ] ] \rangle [_{PP} \text{ to } t_1]_2$

[Hasegawa \(2006:443\)](#) claims that this problem can be circumvented by positing a ‘short source’ in which the ellipsis site only contains the embedded TP *Mary was talking*  $t_2$  and therefore no cross-clausal extraposition. However, this is clearly not the case. The parallel examples in (8) shows that a short source construal in (8b) results in an inconsistent reading (cf. [Barros 2014:59](#)). Consequently, this example would have to involve unbounded rightward movement.

- (8) John thinks that I am cheating on my girlfriend, but I don’t know who with.  
a. = I don’t know who John thinks that I am cheating on my girlfriend with.  
b. = #I don’t know who I am cheating on my girlfriend with.

<sup>4</sup> [van Craenenbroeck \(2010:65\)](#) argues that the repair effect follows from the *Chain Uniformity Condition* ([Chomsky 1995](#)). In a derivation such as (5), the chain is argued to contain a PP link as the tail and an intermediate DP link and is thus not uniform. It is argued that deleting the lower copy ‘repairs’ this. However, it seems that we are actually dealing with two distinct chains: one instance of PP movement and another separate DP movement chain. To make this account work, [van Craenenbroeck \(2010\)](#) is forced to add a number of stipulations such that *Chain Uniformity* holds at PF (in addition to LF) and that it also takes syntactic category into account, rather than just phase structure status (as in its original conception; [Chomsky 1995:253](#)). Furthermore, *Chain Uniformity* has been argued to be undesirable due its radically non-local nature (see [Müller 2011:99](#)).

<sup>5</sup> [Larson \(2012\)](#) proposes a similar account, however instead of having the PP move outside the ellipsis site, Larson follows [Hornstein \(2009\)](#) in assuming that Merge decomposes into the sub-operations Concatenate and Label. If phrase is concatenated, but does not receive a label, it becomes ‘invisible’ for ellipsis (by stipulation). Hornstein proposes this for adjuncts and it is unclear how this extends to PP complements as in (7). Furthermore, the Swiping/P-Stranding Generalization would reduce to whether a language labels its PPs or not. This would appear to make unattested predictions: for example, that swiping languages can never elide PPs.

Another well-known fact about extraposition is that it creates freezing effects for extraction as in (9) (see [Wexler & Culicover 1980:278](#) for English and [Heck 2008:279](#) for Danish).

- (9) \*Who<sub>1</sub> did you talk t<sub>2</sub> yesterday [PP to t<sub>1</sub>]<sub>2</sub> ? ([Drummond 2009:49](#))

Appealing to wh-movement applying before extraposition will not suffice since, if remnant PP extraposition were a generally available option in the grammar of English, we would expect surface strings such as (9) to be derivable. Lastly, this approach fares no better in deriving the Swiping/P-Stranding Generalization. [Hasegawa \(2006:444\)](#) claims that the ‘impossibility of swiping in languages that allow preposition stranding might be attributed to [other] factors [. . .] for instance, the impossibility of extraposition of the remnant PP under certain circumstances’. Not only is there no supporting evidence for this claim, there are empirical reasons to doubt it. Pseudogapping in Scandinavian is only possible with PP remnants. [Gengel \(2007, 2013\)](#) shows convincingly that this can only be derived by PP extraposition followed by ellipsis. Despite not have swiping, Icelandic still allows for extraposition to feed pseudogapping. It is therefore not possible to explain the absence of swiping in a given language simply as the general unavailability of PP extraposition in ellipsis contexts.

#### 4 Deriving the Swiping/P-Stranding Generalization

Instead, we can try to capture the unidirectionality of the Swiping/P-Stranding Generalization by finding a common denominator between the two constructions. For both P-stranding and swiping, I propose that this is supposedly ‘anti-local’ movement to Spec-PP. I adopt a version of [Merchant’s \(2002\)](#) analysis of swiping, which involves head incorporation of D into P.

- (10)
- 
- ```

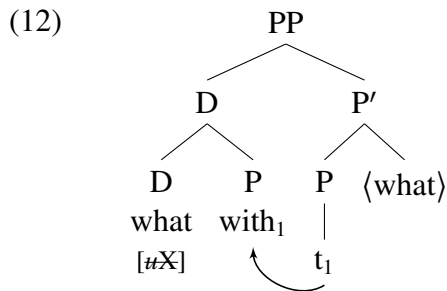
graph TD
  PP --> P1[P]
  PP --> D1[D]
  P1 --> D2[D]
  P1 --> P2[P]
  D2 --> what1[what1]
  P2 --> with[with]
  D1 --> t1[t1]
  
```

This approach derives the fact that, across Germanic languages, swiping is for the most part only possible with ‘simplex’ wh-words (11), which can be viewed as both minimal/maximal projections, as with clitics ([Chomsky 1995](#); [Uriagereka 1995](#), also cf. [Muysken 1982](#)).<sup>6</sup>

- (11) John was talking, but I don’t know *who with* / \**which person with*.

Where my proposal differs from [Merchant’s](#) is that I assume that it is P that moves to the minimal wh-phrase, and that this takes place in a Spec-Head configuration in the syntax, rather than at PF (cf. *m-Merger*; [Matushansky 2006](#)). Technically, this is achieved by assuming that simplex wh-phrases can bear a head movement triggering feature [*uX*] that attracts the lower P under asymmetric c-command (12).

<sup>6</sup>Furthermore, only these simplex wh-phrases are possible in so-called ‘copy constructions’ in Germanic. Following [Fanselow & Mahajan \(2000\)](#), [Nunes \(2004\)](#) proposes that these are then incorporated into the C head in a similar fashion and are then immune to Chain Reduction.



In order for *what* to asymmetrically c-command the preposition, it must first move from the complement position to the specifier of P, as indicated in (12) (this is then similar to the analysis of swiping in [van Riemsdijk 1978](#), [Lobeck 1995](#) and [Abe 2015](#)). This step appears to be in violation of the commonly-assumed *anti-locality* constraint that prevents movement that does not cross at least one maximal projection (e.g. [Bošković 1997](#); [Grohmann 2003](#); [Abels 2003](#)). This constraint is also closely linked to the standard analysis of P-stranding.

[Abels \(2003, 2012\)](#) assumes that anti-locality exists as a universal principle and derives variation between languages elsewhere in the grammar. Initially, [Abels \(2003\)](#) proposed that languages with P-stranding simply do not have a PP phase. This assumption was then later rejected in [Abels \(2012:223\)](#) as a ‘weakening of the theory’. In order to maintain the assumption of anti-locality, [Abels \(2012\)](#) is then forced to assume that languages allowing P-stranding have an additional layer of invisible functional structure so that movement can escape the PP phase whilst crossing more than one maximal projection (13) (also see [Bošković 2014:38](#)).

(13) *P-stranding language:*  
 [PP who [P' P [XP X <who> ]]]

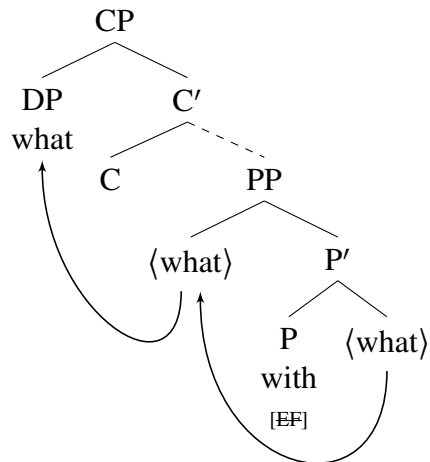
(14) *non-P-stranding language:*  
 [PP who [P' P <who> ]]

However, this is clearly a rather *ad hoc* solution for P-stranding languages such as English and is primarily driven by the desire to maintain anti-locality. Furthermore, it does not bring us closer to deriving the generalization in (3) in any obvious way. In the current approach, I assume that anti-local movement is in fact possible and this is how both variation in P-stranding and the Swiping/P-Stranding Generalization can be explained.

Let us assume that P is universally a phase head. What will distinguish between languages that allow or disallow P-stranding is whether movement to an ‘escape-hatch’ in Spec-PP is possible (as originally proposed by [van Riemsdijk 1978](#)). This parameter can be thought of either as whether some anti-locality constraint is active in a given language, or whether an ‘edge feature’ is licensed on P.<sup>7,8</sup> A successful P-Stranding derivation then requires that a language permits an edge feature [EF] on the head of a PP (cf. [Chomsky 2008](#); [Richards 2011](#)). This can then trigger movement to the edge of the PP phase and allow for later extraction (15).

<sup>7</sup>The latter option appears to be more in line with the so-called *Borer-Chomsky Conjecture* that all cross-linguistic variation resides in the lexicon (see [Baker 2008:156](#)).

<sup>8</sup>Although it is worth noting that the analysis here is not necessarily incompatible with the ‘hidden structure’ approach to P-Stranding in (13), which views anti-locality as sacrosanct. What is crucial, however, is that the additional XP projection is below the P head so the Head Movement Constraint is not violated.

(15) *Derivation of P-Stranding:*

This movement step from is also required in the derivation of swiping proposed in (12). In order to check its  $[uX]$  feature, the minimal/maximal wh-phrase *what* first moves to Spec-PP (licensed by the edge feature on P) and subsequently triggers P-to-D movement (16).

(16) *Derivation of Swiping:*

Under this view, both P-stranding and swiping require movement to Spec-PP. In order for a language to have swiping, it must also independently allow for the complement of P to move to the edge of the PP phase, that is, it must also permit P-stranding. However, even if a language does allow phase-evaucating movement to Spec-PP, the relevant minimal/maximal wh-items can still lack the relevant incorporation-triggering feature ( $[uX]$ ) that ultimately derives swiping. Incorporation is impossible without movement out of PP, but whether or not a language has the incorporation-trigger ( $[uX]$ ) feature is a matter of micro-parametric variation among P-stranding languages. In this way, we derive the unidirectionality of the Swiping/P-Stranding Generalization in (3).

## 5 Two challenges

There are still some unresolved challenges that a Merchant-style incorporation analysis faces. In the following section, I discuss what seem to be the two main criticisms of this approach and suggest how they can be reconciled with the current analysis.

### 5.1 The Sluicing Condition

All theories of swiping have to account for what Merchant (2002:298) called the *Sluicing Condition*, that is, why swiping is exclusively possible in sluicing contexts, and not elsewhere (17).

(17)  $*[_{PP} \text{Who to}]_1$  did you talk  $t_1$  ?

If swiping is essentially a PP-internal process (as in van Riemsdijk 1978; Lobeck 1995; Merchant 2002), then it is unclear how to restrict it to sluicing contexts. We saw that ‘stranding’

theories also struggle to derive this restriction in an adequate way. What I propose here is the following: In a swiping derivation, P incorporates into the minimal/maximal wh-phrase and thereby forms a complex head with it as in (16). Given the Head Movement Constraint (Travis 1984), movement of this complex head to Spec-CP is impossible under normal circumstances and this derivation will ultimately crash. How is this movement then suddenly possible with sluicing? Rather than appeal to ellipsis repair<sup>9</sup>, I follow Heck & Müller (2000, 2007) in assuming that sluicing involves ‘repair-driven’ movement. For example, it is well-known that languages that do not normally allow multiple wh-fronting, such as English and German, permit multiple sluicing (e.g. Bolinger 1978; Merchant 2001; Richards 2010; Lasnik 2014):

- (18) Everyone danced with someone, but I don’t know who with whom.  
(Richards 2010:3)

In an optimality-theoretic approach, Heck & Müller (2000, 2007) argue that an otherwise impossible movement operation such as multiple wh-fronting can be licensed to avoid a violation of a high-ranked constraint such as WH-RECOVERABILITY, which requires that wh-phrases not be deleted, i.e. moved out of the ellipsis site. Consequently, it is possible to circumvent otherwise rigid restrictions on movement only in ellipsis contexts. I argue that the same logic holds for the swiping, that is, the Head Movement Constraint is less important than the recoverability condition and as such, movement to the D+P complex to Spec-CP is licensed only if it would otherwise be deleted.<sup>10</sup>

## 5.2 ‘Long distance’ swiping

Another challenge for this approach is so-called ‘long distance swiping’ in which it seems that the preposition remains in a lower clause (19). As first pointed out by van Craenenbroeck (2010:105,fn.124), some speakers allow for intervening material between the complement and preposition of a swiped PP. Hartman & Ai (2009) provide the following attested examples found by internet searches (19).

- (19) a. Besides, Jisao was ‘invited’ here. Who do you think by?  
b. Will I get married, and if so, who do you think with?  
c. He wants us. –What do you suppose for?

However, a telling fact is that virtually all naturally occurring examples involve predicates of a certain type, such as *think*. Bayer (2005) and Bayer & Salzmann (2013) argue that *do you think* is an interrogative parenthetical (cf. *slifting*; Ross 1973).<sup>11</sup> This can be seen in the following examples from Bayer (2005) and Bayer & Salzmann (2013:300), where it clear that the string must be parenthetical, otherwise a non-constituent would have been fronted.

- (20) a. When was this painting made, *do you think*?  
b. Who is, *do you think*, the best female Tejano vocalist at the moment?  
c. Who could, *do you think*, challenge his version of the account?

Importantly, this parenthetical can interpolate to give the impression of long-distance extraction. I argue that this is what is happening in cases such (19). Supporting evidence comes from predicate restrictions (cf. Radford & Iwasaki 2015:735). The predicate *deny* is not a possible

<sup>9</sup>See Lasnik (2007), who sketches of an analysis of how movement of the [who+to] complex to Spec-CP could be argued to result in failure of linearization.

<sup>10</sup>Alternatively, the ‘recoverability’ analysis could also be implemented as some kind of scattered deletion with the wh-phrase staying *in situ* (see Abe 2015:19).

<sup>11</sup> This analysis was originally proposed for extraction from V2-clauses in German by Reis (1995, 2002).

interrogative parenthetical, but is a bridge predicate for long-distance extraction (21) (cf. Kiziak 2010:120).

- (21) a. \*Who did Tom talk to, did she deny?  
b. Who did she deny (that) Tom had talked to?

In swiping constructions, an intervening *deny*-clause is impossible (22).

- (22) Mary was talking on the phone...  
a. who do you think to?  
b. \*who did she deny to?

The fact that *did she deny* is not a possible parenthetical, but is a long-distance extraction predicate, suggests that intervening material in swiping is in fact parenthetical in nature.<sup>12</sup>

## 6 Conclusion

In this paper, it was shown that the unidirectionality of the Swiping/P-Stranding Generalization is not explained by recent ‘intermediate stranding’ or ‘extraposition’ approaches. Instead, I argued that the fact that some, but not all P-stranding languages allow swiping can be captured on the view that the derivation of swiping necessarily requires movement to the edge of the PP phase. The result is that it is impossible for a language to have swiping if P-stranding is not also possible. However, moving to Spec-PP does not in itself necessitate that P-to-D incorporation takes place to derive swiping, thereby deriving the unidirectional nature of the generalization.

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<sup>12</sup> This argument also extends to examples from Radford & Iwasaki (2015:735) showing that non-bridge predicates such as *quip* and *snort* are not possible interveners in swiping. These are also not possible parenthetical predicates. On the other hand, the fact that *deny* is a bridge predicate but not possible in swiping is problematic for Radford & Iwasaki.



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