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Quoi-sluices in French

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Sluicing has traditionally been analyzed as an operation involving wh-movement and deletion (Merchant 2001). French is a language that has both fronted and wh-in situ strategies; on the surface, however, it seems that French sluices do not involve (overt) movement, in spite of this being an available option. For nearly all wh-words, the in situ and moved forms are the same; the notable exception is *que/quoi* ‘what’— *que* is found in fronted wh-questions alone, while *quoi* is found in situ. In sluicing, only *quoi* surfaces, suggesting that French may be a challenge for the movement-and-deletion approach (Dagnac 2019).

By formalizing an analysis within a late insertion approach to the syntax-morphology interface, I argue that not only do sluices in French involve full structure, but that these involve movement as well. I assume that the wh-word is initially represented in the syntactic derivation as an abstract feature bundle. The morphological form is determined in the mapping of syntax to morphology by locality-dependent Vocabulary Insertion (VI) rules that are sensitive to C. These rules apply only after ellipsis occurs. Additionally, following Thoms (2010), I argue that C is targeted in sluicing, and as a result sluicing destroys the context that would trigger *que*. In this way, French sluicing provides support for the idea that ellipsis is able to bleed morphological operations (Saab & Lipták 2016; among others). The benefit of this analysis is that it is able to capture sluicing in French, while simultaneously explaining the behavior of *quoi* more generally.



1 Introduction

Sluicing, the construction exemplified in (1), has attracted considerable attention over the years, with the debate focused on how to interpret the “missing” material after the *wh*-word. The most often adopted generative analysis of sluicing has been the Move-and-Delete Approach (MDA; see Merchant 2001), in which (1) is derived from (2).

- (1) Joe is eating something, but I do not know what.
- (2) Joe is eating something, but I do not know what Joe is eating < what >.

The crux of this analysis claims that sluicing involves two steps: *wh*-movement (or an analogous \bar{A} -movement) and deletion, in that order. *Wh*-movement proceeds as it would in non-elliptical contexts, and deletion targets material below the *wh*-word. However, this analysis has not gone unchallenged. Alternative analyses have suggested that what has been elided is not identical to the matrix clause (3a) (Barros et al. 2014), or that there is no movement at all (3b) (e.g. Abe 2015; Ott & Struckmeier 2018; Griffiths 2019), or that nothing has in fact been deleted (3c) (e.g. Chung et al. 1995; Ginzburg & Sag 2000; Culicover & Jackendoff 2005).

- (3) a. Joe is eating something, but I do not know what ~~it is~~ < what > .
 b. Joe is eating something, but I do not know ~~Joe is eating~~ what.
 c. Joe is eating something, but I do not know what.

In languages such as English, assuming movement is involved is consistent with more general processes, namely *wh*-question formation. In other languages, particularly French, the necessity of (overt) movement to feed sluicing is not as clear. Both *ex-situ* and *in-situ* questions are possible; in other words, there is no independent reason to believe that the *wh*-word *must* move. In addition, the form of ‘what’ that surfaces in sluices (4b) is always the form found in *wh*-in situ questions (5b), which at least on the surface seems to suggest that the *wh*-word remains in situ in sluicing contexts. Complicating this puzzle, however, is the fact that the form found in non-elliptical contexts also differs (4a).

- (4) a. Jean mange quelque chose, mais je ne sais pas ce que/*que/*quoi Jean
 Jean eat.3SG some thing but I NEG know.1SG not what Jean
 mange.
 eat.3SG
 ‘Jean is eating something, but I do not know what Jean is eating.’
- b. Jean mange quelque chose, mais je ne sais pas *ce que/*que/**quoi**.
 Jean eat.3SG some thing, but I NEG know.1SG not what
 ‘Jean is eating something, but I do not know what.’

- (5) a. **Que**/***quoi** mange-Jean?
 what eat.3SG-Jean
 ‘What is Jean eating?’
- b. Jean mange ***que/quoi**?
 Jean eat.3SG what
 Lit. ‘Jean is eating what?’

Given this observation, it would seem that French is a challenge for the MDA. If the *wh*-word remains in situ, this raises questions as to how sluices in French are derived. Dagnac (2019) has suggested that *quoi*-sluices support theories in which there is no structure at the ellipsis site (see 3c), given the impossibility of (bare) *quoi* in a fronted position. Ott & Therrien (2020) have recently suggested that (3b) may be more applicable. As it stands, this puzzle highlights the fact that the three forms in (4–5) are not interchangeable, but the exact relation between them—and why only *quoi* is found in sluicing—remains unclear.

The focus of this research is to provide an analysis for sluicing in French, with attention on *quoi*-sluices in particular. In doing so, I consider properties of the grammar that go beyond sluicing, in order to provide a unified analysis. To preview my analysis, I will claim that the distribution of *que* and *quoi* in French is predictable, and it is this predictability that offers insight into sluicing. I adopt a late insertion approach in Distributed Morphology, assuming the *wh*-phrase is initially represented in the morphosyntax as a *wh*-feature bundle. I argue that this feature bundle is sensitive to C. This sensitivity is reflected in the Vocabulary Insertion (VI) rules proposed in this paper. I will motivate and formalize three VI rules: if the *wh*-feature bundle is local to a complex C+V head, *que* surfaces, if it is local to a finite C head, *ce que* surfaces, and in all other contexts, *quoi* is found. Following Thoms (2010), sluicing targets not only TP, but C as well—given this, I argue that C is deleted. Building on this, I illustrate that sluicing destroys the context needed to trigger the form *que*. In this way, this paper proposes a cogent analysis not only for sluicing in French, but for the distribution of these *wh*-phrases in this language more generally.

The paper is organized as follows: in Section 2, I review theories on sluicing that have been proposed in the literature. In Section 3, I discuss sluicing data from French more generally, and the puzzle that *quoi*-sluices provide in particular. I offer a novel analysis in Section 4. I will then conclude with discussion and cross-linguistic implications that extend beyond French.

2 Theories of sluicing

2.1 Movement-and-Deletion (MDA)

The MDA has been argued for most notably by Ross (1969), Merchant (2001), and Lasnik (2001). In this approach, the *wh*-word moves into the Specifier of CP and the TP is subsequently elided.

In this way, sluicing (6a) is derived in the same way as wh-questions in languages that have overt wh-movement (6b)— followed by an additional step of deletion.

- (6) a. John ate something, but I do not know [what [~~John ate~~ <what>]].
 b. What (do) you think John ate <what>?

However, sluicing is still attested in languages without overt wh-movement. As a result, more recent movement-based approaches have framed sluicing in terms of \bar{A} -movement and not necessarily wh-movement. For example, Takahashi (1994) has argued that Japanese sluicing may involve scrambling (but see Merchant 1998 for an analysis based on clefting). Toosarvandani (2008) proposes that sluicing in Persian is derived via focus-movement, which is independently motivated in the language. Van Craenenbroeck & Lipták (2009) similarly suggest that in Hungarian the wh-word moves to a focus position. Crucially, in all of these cases, there is a parallel between the kind of \bar{A} -movement exhibited in the language and sluicing.

The MDA also assumes that there is structure at the ellipsis site. This has been primarily motivated by what have been referred to as connectivity effects, including (i) case-matching, (ii) preposition-stranding (p-stranding), and (iii) binding facts. In languages with case-marking, the wh-word in the remnant often has the same case as in the non-elided counterpart. This is exemplified in German as seen in examples (7–8) from Ross (1969), but this has also been observed in Russian, Polish, Hungarian, and several other languages. The fact that there is parallel case assignment suggests that there is structure at the ellipsis site and that case is assigned in the same way in both elliptical and non-elliptical contexts. This is not a default case assignment, in the sense that wh-remnants do not have a uniform case.¹

- (7) Er will jemandem schmeicheln, aber sie wissen nicht, { *wer / *wen /
 he wants **someone.DAT** flatter but they know not who.NOM who.ACC
 wem }.

who.DAT

‘He wants to flatter someone, but they don’t know who.’

- (8) Er will jemanden loben, aber sie wissen nicht, { *wer / wen / *wem }.
 he wants someone.ACC praise but they know not who.NOM who.ACC who.DAT
 ‘He wants to praise someone, but they don’t know who.’

Another source of motivation for structure at the ellipsis site comes from binding facts. As pointed out by Lasnik (2001), it seems to be possible to bind elements inside the wh-remnant (see his example in (9)). In this example, the elided material is *every linguist criticized*, in which case the

¹ However see Vicente (2015), who provides several counterexamples.

pronoun *his* is bound by the quantified DP. This suggests that the pronoun has moved out of its base-position, where it would have initially been c-commanded by the quantifier. If there is not parallel structure between the antecedent and the embedded clause/remnant, the binding facts are harder to capture.

- (9) Every linguist₁ criticized some of his₁ work, but I'm not sure how much of his₁ work
<every linguist₁ criticized *t*>.

Additional support for structure comes from preposition-stranding. Merchant (2001) claims that languages that allow p-stranding in wh-questions also allow p-stranding in sluicing. This is referred to as the p-stranding generalization. English exhibits p-stranding with wh-questions, and also exhibits p-stranding in sluicing; in (10b) the wh-word moves without the preposition, and in (10c) the “stranded” preposition is elided.

- (10) a. John is playing soccer with someone.
b. Who is John playing soccer with <who>?
c. John is playing soccer with someone, but I do not know who <John is playing soccer with>.

Greek, conversely, is a language that does not tolerate p-stranding in wh-questions; the preposition must be pied-piped with the wh-word. In sluicing, the preposition must surface with the wh-remnant, suggesting the same mechanisms are involved in both cases (see (11) from Merchant).

- (11) I Anna milise me kapjon, alla dhe ksero *(me) pjon
the Anna spoke with someone but not I.know with who
'Anna was speaking with someone, but I don't know with who.'

While the p-stranding generalization holds in several languages, there are languages that do not conform to the generalization, but still exhibit sluicing. An example of this comes from Brazilian Portuguese, which behaves like English in terms of sluicing— allowing the preposition to be stranded— but conversely behaves like Greek in terms of wh-questions, prohibiting p-stranding in this context (see 12 below, slightly modified from Almeida & Yoshida 2007).

- (12) a. Com quem que a Maria dançou <com quem>?
with who that the Maria danced *t*
'With whom did Maria dance?'
b. *Quem que a Maria dançou com <quem>?
who that the Maria danced with
'Who did Maria dance with?'
c. A Maria dançou com alguém, mas eu não lembro (com) quem.
the Maria danced with someone but I not remember (with) who
'Maria danced with someone, but I don't remember who.'

Rodrigues, Nevins & Vincente (henceforth RN&V; 2009) claim that this is not a “true” counterexample to Merchant’s generalization; rather, they argue that Brazilian Portuguese has both sluicing and pseudo-sluicing, where the latter only creates the appearance of p-stranding. In these cases, RN&V argue that the elided material is actually a short source, particularly a cleft, which does not have a preposition (see their example in 13).²

- (13) O João dançou com alguém mas eu não sei [quem [é que o João dançou]].
 the J danced with someone but I not know who is that the J danced

RN&V (2009) extend their analysis to make the stronger claim that any language that seems to violate the p-stranding generalization has pseudo-sluicing, at least as an available (potentially last resort) option. I will return to this issue in Section 3, as French is often cited as a counterexample to the p-stranding generalization as well.

2.2 Non-movement-based accounts

There have been alternatives to the MDA that have been proposed in the literature; most of these share the idea that there is no movement involved in sluicing, but differ in terms of the formulation of the ellipsis site, including whether or not there is structure, and the size of the ellipsis site. One such alternative is the LF Copying approach (see Chung et al. 1995). In this framework, the wh-“remnant” is actually base-generated, but there is a null element in the syntax after the wh-word. The antecedent is copied, and the null element is later replaced by this copy at LF. Copying ensures that the meaning is constrained appropriately. Another approach is referred to as “What You See is What You Get” (WYSIWYG). This theory proposes that there is nothing after the wh-word, and no structure that has been elided (see Ginzburg & Sag 2000; Culicover & Jackendoff 2005; among others for such an analysis).

Non-movement-based approaches (with or without structure) capture the fact that sluicing either does not exhibit island effects or somehow ameliorates or fixes island violations, a well-known fact first noticed by Ross (1969). As can be seen in example (14) from Merchant (2006), if the ellipsis site contains an isomorphic full clausal structure, this should incur an island violation; since it does not, this suggests that there may not be structure at the ellipsis site.

- (14) They want to hire someone who speaks a Balkan language, but I can’t remember which.

- (15) They want to hire someone who speaks a Balkan language, but I can’t remember which
 (Balkan language) [~~they want to hire someone who speaks~~ <which Balkan language>].

At the same time, this could nevertheless suggest that the structure at the ellipsis site is somehow non-isomorphic. Barros et al. (2014) have argued that “island-violating” examples are ones in

² Only the gloss is provided.

which there is actually a “short source” at the ellipsis site, such that only the NP (and not a full TP) has been deleted (16).

- (16) They want to hire someone who speaks a Balkan language, but I can't remember which ~~Balkan language~~.

All of these approaches require that the interpretation of sluices be constrained in some way via the semantics if there is no underlying syntactic material that is being targeted.

2.3 Non-constituent ellipsis

It has traditionally assumed that sluicing targets constituents (namely, TP). However, recently it has been suggested that non-constituents are in fact able to be deleted (Abe 2015; Ott & Struckmeier 2017; Griffiths 2019). The exact formulations of these theories differ, but all non-constituent (in situ) theories of ellipsis are motivated by the fact that some things that (seemingly) cannot move are able to survive ellipsis. For example, Ott & Struckmeier (2018) argue that German Modal Particles (MPs) (in bold in 17) are “rigidly immobile” and cannot move (as seen in 18, modified/based on their example in (17)), but crucially still show up with the *wh*-remnant in fragment questions (19).³

- (17) Wer hat **denn** die Leute eingeladen?
 who has MP the people invited
 ‘Who invited the people?’

- (18) *[Wer denn] hat die Leute eingeladen?
 who MP has the people invited
 ‘Who invited the people?’

- (19) A: Peter invited a couple of people.
 B: WEN denn?
 who MP
 ‘Who?’

In this case, they argue that semantic content, and not syntactic constituents, may be deleted; backgrounded information that corresponds to a QUD and is recoverable is able to be elided (20). MPs are never backgrounded, and thus “escape” deletion.

- (20) WEN_F ~~hat Peter~~ denn *t_{wh}* ~~eingeladen~~?
 who ~~has Peter~~ MP ~~invited~~
 ‘Who?’

³ There are apparently exceptions to this—that is, there are MPs that may attach to *wh*-phrases, as acknowledged by Ott & Struckmeier (2018). See Broekhuis & Bayer (2018) for criticism.

If something that cannot move is able to survive ellipsis, then movement is not required to generate wh-remnants.

Beyond the German examples, there have been other attempts in the literature to formalize an in situ approach to sluicing. Abe (2015) adopts an approach based on Chung et al. (1995) and Kimura (2007; 2010), in which the wh-word is base-generated in situ (regardless of whether or not the language normally has wh-in situ). Deletion simply targets material between the wh-feature in CP and the wh-remnant (as in 21). Two of the biggest motivating factors for Abe (2015) are the (lack of) island violations and the observation that material in C does not survive sluicing, also known as the Sluicing COMP generalization (Merchant 1998); lack of movement at the ellipsis site would explain both phenomena.

(21) John ate something, but I do not know [_{CP} [_C [_{TP} ~~John ate~~ what]]].

A more recent approach comes from Griffiths (2019), who argues that what is elided corresponds to the MaxQUD (similar to Ott & Struckmeier 2018). In this account, there is still movement (unlike in other in situ analyses), but it is movement of material that corresponds to the QUD; for Griffiths, movement does not have to be to the left periphery. He argues that the sister to this moved phrase (the QUD) will survive deletion.

3 Considering the French data

Before mentioning the sluicing data, it is important to discuss how wh-questions are formed in French. As mentioned, French has both fronted (ex-situ) wh-questions and wh-in situ questions. The form of the wh-word is often the same in both cases.

- (22) a. Où vas-tu? [wh-ex-situ]
 where go.2SG-you
 ‘Where are you going?’
 b. Tu vas où? [wh-in situ]
 you go.2SG where
 Lit. ‘You are going where?’

However, this is not the case for what-questions. In matrix wh-questions, the wh-ex-situ form is *que* and the wh-in situ form is *quoi* (see 23).⁴

- (23) a. **Que** regardes-tu? [wh-ex situ]
 what watch.2SG-you
 ‘What are you watching?’

⁴ French questions may also be formed with *est-ce* (an inverted cleft), including what-questions, where the form is *qu’est-ce que*. This form is also not interchangeable with *quoi* and does not surface in sluicing. I will not be focusing on *est-ce que* forms in this paper, but my analysis is able to be extended to account for them as well.

- b. *Quoi regardes-tu?
 what watch.2SG-you
 ‘What are you watching?’
- c. Tu regardes **quoi**? [wh-in situ]
 you watch.2SG what
 Lit. ‘You are watching what?’
- d. *Tu regardes que?
 you watch.2SG what
 Lit. ‘You are watching what?’

The former is traditionally analyzed as a wh-clitic, and the latter as the strong form (see Bouchard & Hirschbüler 1986; Poletto & Pollock 2004; see also Cardinaletti & Starke 1994 for discussion of weak/clitic and strong forms in Romance languages). This distinction is based on several asymmetries between these two forms. For example, the wh-clitic is only found in fronted position in the matrix clause, where it has moved such that it is left-adjacent to a verbal host. French exhibits verb movement in matrix clauses, where V moves to T and, in wh-questions, then moves to C. This movement is in fact required with *que* (as exemplified above). This results in subject-verb inversion. Although subject-verb inversion is the prescribed rule for most fronted wh-questions in French, it is really only with *que* that inversion seems to be absolutely required by native speakers—with other wh-words, lack of inversion is attested and is much more acceptable. Regardless, the crucial fact here is that whereas inversion is required for *que*, it is not for other wh-words (24b). This suggests that *que* may well differ from other wh-words in French in behaving like a wh-clitic (see also discussion in Munaro & Pollock 2008), necessitating a verbal host.

- (24) a. *Que tu fais?
 what you do.2SG
 ‘What are you doing?’
- b. Où tu vas?
 where you go.2SG
 ‘Where are you going?’

A potential objection to *que* being a clitic comes from aggressively non-d-linked expressions, as in (25), where the wh-clitic is not adjacent to the verb:

- (25) Que *diable* a-t-il dit?
 what devil has-he said
 ‘What the hell did he say?’

However, in this case, *que diable* is an expression, where *diable* may be acting as a head modifier (as opposed to a phrasal modifier). This would mean that *que diable* is a simplex head that is still adjacent to the verbal host. It may also be the case that this expression is becoming a quasi-frozen form—it is arguably not completely frozen yet as *diable* can combine with other wh-words (even if such usage is seemingly rare). In either case, the entire expression functions as the wh-element (see den Dikken & Giannakidou 2002 for a similar argument for ‘the hell’ expressions in English), in which case *diable* does not truly intervene between the wh-word and the verb (but see fn. 27 in Munaro & Pollock (2008) for an alternative analysis). I will return to this issue in Section 5.

While *quoi* is the only form that surfaces in wh-in situ questions— potentially giving the impression that it is only an “in situ form” (Dagnac 2019; Ott & Therrien 2020)— its distribution is not as constrained as that of the clitic form, and it is certainly not “rigidly immobile” like German MPs. While *quoi* alone cannot surface in the matrix position of a finite question (see 23b), it obligatorily surfaces if it is part of a larger phrase, such as inside a PP (26–27), or with a phrasal modifier, e.g. *else*-modification (28), and these phrases with *quoi* may in fact move.

(26) [À quoi] ça sert?
to what this serve.3SG
‘What is the purpose?’

(27) [De quoi] Marie joue?
of what Marie play.3SG
‘What does Marie play?’

(28) [Quoi d’autre] est possible?
what of-other be.3SG possible
‘What else is possible?’

This is also the only form that surfaces in coordinated questions (29–30), potentially as part of, or forming, Coordinated Phrase (ConjP) viz. Munn (1987; 2000).

(29) Qui ou quoi est à la porte?
who or what be.3SG at the door
‘Who or what is at the door?’

(30) Qui et quoi habite ici?
who and what live.3SG here
‘Who and what lives here?’

While *que* and *quoi* are almost always found in complementary distribution, there is an exception to this pattern. Infinitival questions allow for *que* or *quoi*, an optionality that does not exist elsewhere; both options in (31) are grammatical.⁵

- (31) Que/quoi faire?
 what do.INF
 ‘What to do?’

Lastly, returning to the third form, *ce que*, this variant only surfaces in contexts in which there is no subject-verb movement, but where there is still a verbal host. This is exactly what is found in embedded clauses in French, where the verb does not move to C. Embedded questions are in fact the only environment in which *wh*-in situ is ungrammatical; all other syntactic contexts allow for both fronted and in situ *wh*-questions.

- (32) a. Je me demande ce que tu regardes.
 I self ask.1SG what you watch.2SG
 ‘I wonder what you are watching.’
 b. *Je me demande que regardes-tu.
 I self ask.1SG what watch.2SG-you
 ‘I wonder what are you watching.’
 c. *Je me demande que tu regardes quoi.
 I self ask.1SG what you watch.2SG what
 ‘I wonder you are watching what.’

The inclusion of *ce* with *que* gives the appearance of clitic doubling, which is how Sportiche (2008) analyzes this form.⁶ I will adopt his assumption that *ce que* is a “strengthened” form of the *wh*-word that surfaces here.

⁵ At least, both options are attested in different varieties of French. The variant *quoi faire* seems to be more common/acceptable in Canadian French, as a simple search on tourism websites reveals.

⁶ An alternative would be to analyze *ce* and *que* separately, based on the non-trivial observation that *que* is the same form that the complementizer (*que*) takes. In other words, *ce* may be functioning as the *wh*-word. Analyzing *ce* as the *wh*-word suggests that French tolerates a doubly filled COMP, and this has indeed previously been argued for in the literature (Bouchard 1984; but see Koopman 1997 for an explanation arguing for more structure). This is based on the observation that *wh*-words are able to surface with *que* in French, as in matrix questions (i-a), but also in embedded questions like (i-b) from Pesetsky (1995). The form may change for phonological reasons—that is, there would be two adjacent homophonous phonological forms otherwise (ii). See also Richards’ (2010) distinctness condition.

- (i) a. Qui que tu as vu?
 who that you have.2SG seen
 ‘Who did you see?’

In sum, all of the examples in this section highlight that the form of the *wh*-word is highly context-dependent, and that the distribution of *quoi* thus crucially suggests that it is able to move and does not have a fixed position, whereas *que* is dependent on the verb.

3.1 Sluicing in French

First, in terms of sluicing more generally in French, applying the traditional diagnostics concerning connectivity (see Section 2) suggests that there is structure at the ellipsis site. Unlike languages with rich case-marking like German, modern French does not have any remnants of case, so this will not be a helpful diagnostic. However, there are other indicators of there being structure. First, support for structure at the ellipsis site in French comes from the binding facts. As in languages like English, binding into a *wh*-remnant is also possible in French (33).

- (33) Chaque linguiste₁ a critiqué une partie de son₁ travail, mais je ne sais
 each linguist have.3SG criticized a part of his work but I NEG know.1SG
 pas combien de son₁ travail <chaque linguiste₁ a critiqué *t*>.
 not how-much of his work each linguist have.3SG criticized
 ‘Each linguist criticized part of his work, but I do not know how much of his work
 (each linguist criticized).’

Lastly, in terms of preposition-stranding, French, like Brazilian Portuguese, at times conforms to the generalization, and at other times violates it. As mentioned, when the *wh*-phrase is embedded inside a PP, and the entire PP must move together in a *wh*-question, yielding (34a); stranding the preposition, as in (34b), is ungrammatical.

- (34) a. À quoi/qui Jean pense ?
 of what/who Jean think.3SG
 ‘What/who is Jean thinking (about)?’
 b. *Quoi/qui Jean pense à?
 what/who Jean think.3SG of
 ‘What/who is Jean thinking (about)?’

-
- b. Je me demande qui (que) tu as vu.
 I self ask.1SG who (that) you have.2SG seen
 ‘I wonder who you saw.’

- (ii) *Que que tu as vu?
 what that you have.2SG seen
 ‘What did you see?’

Ultimately, either analysis will work for the purposes here.

In sluicing, the picture is more complicated. Merchant (2000) reports that (35) is ungrammatical without the preposition. However, some speakers from France find (35) to be perfectly acceptable. There are also well-known counterexamples to the p-stranding generalization, namely (36) from Rodrigues, Nevins & Vicente (RN&V).

(35) Merchant (2000)

Anne l'a offert à quelqu'un mais je ne sais pas *(à) qui.
 Anne it-has offered to someone but I NEG know.1SG not (to) who
 'Anne offered it to someone, but I do not know (to) whom.'

(36) RN&V (2009)

Jean a dansé avec une des filles, mais je ne sais pas laquelle.
 Jean has.3SG danced with one of.the girls, but I NEG know.1SG not which
 'Jean danced with one of the girls, but I don't know which one.'

Here I argue that there is a potential solution to the differing judgments (and potential dialectal variation) observed with (35), and the acceptability of (36), based off of the argumentation found in RN&V (2009). The sluicing examples that seem to violate the p-stranding generalization may actually have a cleft source; that is, rather than the ellipsis site containing a full clause that is identical to the antecedent, it may contain a cleft (with the wh-remnant corresponding to the pivot of the cleft). It could be that p-stranding is more acceptable when cleft continuations are possible (as in 37–38). As a result, it may be that a difference in how speakers are interpreting the ellipsis site could give rise to a difference in grammaticality judgments.

(37) Anne l'a offert à quelqu'un mais je ne sais pas qui (c'est).
 Anne it-have.3SG offered to someone but I NEG know.1SG not who (it be.3SG)
 'Anne offered it to someone, but I don't know know who (it is).'

(38) Jean a dansé avec une des filles, mais je ne sais pas laquelle (c'est).
 Jean has.3SG danced with one of.the girls, but I NEG know.1SG not which (it be.3SG)
 'Jean danced with one of the girls, but I don't know which one (it is).'

The acceptability of examples like (35/37) would then be consistent with RN&V (2009) and would thus not be a problem for the p-stranding generalization. For most wh-words in French, clefting is indeed a plausible strategy, given that cleft continuations are grammatical (39–40).

(39) Jean est allée quelque part, mais je sais pas où (c'est).
 Jean be.3SG gone some place but I know.1SG not where (it-be.3SG)
 'Jean went somewhere, but I do not know where (it is).'

- (40) Jean a vu quelqu'un, mais je sais pas qui (c'est).
 Jean has.3SG seen someone, but I know.SG not who (it be.3SG)
 'Jean saw someone, but I do not know who (it is).'

Cleft continuations with *quoi* are more problematic. The example in (41) is acceptable, at least for some speakers. However, cleft continuations are not possible with *quoi* acting as the wh-pivot (see 42), unlike other wh-words (like *qui* in the examples above).

- (41) ?Jean a besoin de quelque chose, mais je ne sais pas (de) quoi.
 Jean has.3SG need of some thing but I NEG know.1SG not (of) what
 'Jean needs something, but I do not know what.'

- (42) Jean mange quelque chose, mais je ne sais pas quoi (*c'est).
 Jean eat.3SG some thing but I NEG know.1SG not what (it-be.3SG)
 'Jean is eating something, but I do not know what (it is).'

This remains true regardless of the position of the cleft with respect to the wh-word (43). The examples in (43–44) are marginal at best, and (45), the non-elided version of (43) with a cleft, is also ungrammatical.

- (43) ?? Jean mange quelque chose, mais je ne sais pas c'est quoi.
 Jean eat.3SG some thing but I NEG know.1SG not this-be.3SG what
 Lit. 'Jean is eating something, but I do not know it is what.'

- (44) ?? Je sais pas c'est quoi.⁷
 I know.1SG not this-be.3SG what
 Lit. 'I do not know this is what.'

- (45) *Jean mange quelque chose, mais je ne sais pas c'est quoi qu'il mange.
 Jean eat.3SG some thing but I NEG know.1SG not this-be.3SG what that-he eat.3SG
 Lit. 'Jean is eating something, but I do not know it is what that he is eating.'

The unacceptability of a cleft with *quoi* suggests that *quoi*-sluices do not rely on a cleft source.

Consistent with this observation, Merchant (2001) has argued that clefts are not possible with *else*-modification, whereas sluices are. In French, *quoi*-sluices are perfectly grammatical with *else*-modification (46), suggesting these cannot be reduced to pseudo-sluicing with a cleft source.

- (46) a. Jean mange un sandwich, mais je sais pas quoi d'autre (*c'est).
 Jean eat.3SG a sandwich but I know.1SG not what of-else (it-be.3SG)
 'Jean is eating a sandwich, but I do not know what else.'

⁷ This is OK for some younger speakers, but it does not seem to be that productive. It is a kind of fixed expression.

- b. Quoi d'autre (*c'est)?
 what of-else (it be.3SG)
 'What else (is it)?'

Given these restrictions, I argue that while clefting may indeed be a possible source for sluicing with most *wh*-words in French—explaining the acceptability of (35)— it is crucially not for *quoi*. The fact that overt *wh*-movement is possible with most *wh*-words in French, and that French does conform to the MDA in other ways (e.g. binding facts, constraints on voice mismatches), also suggests that there is structure at the ellipsis site.

3.2 Quoi-sluices

As mentioned, *quoi*-sluices are a challenge to movement-based theories of ellipsis, given that the *wh*-remnant in sluices is always *quoi*. The fact that (bare) *quoi* is not possible in a fronted position complicates this analysis. It would suggest, on the surface, that there is no (overt) *wh*-movement. We have already seen that clefting is not a viable strategy with these cases, as this is the one *wh*-word that seems incompatible with a cleft continuation. If there is no movement, then this could be another instance of non-constituent ellipsis. This would amount to saying that the *wh*-remnant never moves from its base position, but manages to survive deletion of the rest of the TP (47), as suggested by Ott & Therrien (2020).

- (47) Jean mange quelque chose, mais je ne sais pas [~~Jean mange~~ *quoi*].
 Jean eats.3SG some thing but I NEG know.1SG not [~~Jean eats.3SG~~ what]
 'Jean is eating something, but I do not know what.'

All other *wh*-words are homophonous between fronted and in situ forms—could this suggest that *wh*-remnants are actually always in situ? And that sluicing in French only gives the appearance of movement?

Beyond the traditional diagnostics mentioned in Section 2 and 3, there are reasons to think that the *wh*-remnant can be located in CP; for one, although *wh*-in situ is available with most cases, it is not possible with *why*-questions (48). Sluicing with *pourquoi* is still grammatical (49).

- (48) a. Pourquoi Jean mange?
 why Jean eat.3SG
 'Why is Jean eating?'
 b. *Jean mange pourquoi?
 Jean eat.3SG why
 'Jean is eating why?'

- (49) a. Jean mange quelque chose, mais je sais pas pourquoi il mange.
 Jean eats.3SG some thing but I know.1SG not why he eat.3SG
 ‘Jean is eating something, but I do not know why.’
- b. Jean mange quelque chose, mais je sais pas pourquoi.
 Jean eats.3SG some thing but I know.1SG not why
 ‘Jean is eating something, but I do not know why.’

A bigger concern with a non-constituent approach to ellipsis, however, involves embedded questions. As previously discussed, *wh-in situ* is not possible with embedded predicates, but sluicing is crucially acceptable in these contexts (see 50).

- (50) A: Jean mange quelque chose.
 Jean eat.3SG some thing
 ‘Jean is eating something.’
- B: Je sais/ me demande quoi.
 I know.1SG self ask.1SG what
 Lit. ‘I know/wonder what.’
- B’: *Je sais/ me demande Jean mange quoi.
 I know.1SG self ask.1SG Jean eat.3SG what
 Lit. ‘I know/wonder Jean is eating what.’

There is an underlying assumption that what is deleted must be grammatical in non-elliptical contexts (e.g. must be able to surface overtly)—hence the puzzle of how *quoi* can surface if there is movement. This time, however, the problem is flipped; if we assume that there is no movement, and the *wh*-remnant remains *in situ*, then the acceptability of sluicing in these contexts would be unexplained, as Dagnac (2019) acknowledges. There are quite a few theories on what licenses *wh-in situ* in the literature, from those that are more semantic in nature (e.g. Cheng & Rooryck 2000; Mathieu 2004) to those that rely on pragmatics (Tieu 2012), to those that have considered the role of the discourse context (Gotowski & Déprez 2020). What all of these theories have in common is that all of them agree that (i) syntax alone cannot account for the distribution, given that *wh-in situ* questions are always grammatical except for (ii) in these embedded contexts. In other words, while there is no consensus on when *wh-in situ* is “preferred” in French, it is absolutely not able to appear in this particular syntactic environment—and there is critically no prohibition on sluices in this same context. There is no obvious context in which a sluice would be illicit.

An objection to a movement-based approach might arise from the existence of multiple-*wh*-questions and sluices. Assuming that both *wh*-words move is problematic in that French is not a language that allows for multiple *wh*-words to be fronted in non-elided contexts. Nevertheless, it has been well-documented in the literature that these kinds of sluices are attested in languages

that do not tolerate multiple *wh*-movement (see e.g. Van Craenenbroeck & Lipták 2009; Lasnik 2014; Abels & Dayal 2017; Kotek & Barros 2018 for discussion, among others). The acceptability has been considered to be a repair effect, at least in some languages, such as Hungarian (see Van Craenenbroeck & Lipták 2009). In English, sluices corresponding to multiple *wh*-questions are marginal; Kotek & Barros (2018) report that a subset of English speakers accept them as fully grammatical, some reject them, and others still find that certain ones are better than others, depending on the *wh*-phrase. Kotek & Barros do not provide an account for this variability, but acknowledge this puzzle. In French, there may be a similar pattern— including an effect of the *wh*-word. Examples with a DP and PP as remnants (52) are judged as acceptable, if a little strange, whereas (53) is ungrammatical. The judgments reported here (52–54) come from speakers of European French, so it is possible that other varieties of French accept these more readily—but I will leave this question of inter- and intra-dialectal variation for future research.

(51) (?)Everyone read something, but I do not know who what.

(52) (?)Jean a donné quelque chose à quelqu'un, mais je ne sais pas quoi à qui.
 Jean has given.PP some thing to someone but I NEG know.1SG not what to whom
 'Jean gave something to someone, but I do not know what to whom.'

(53) *Tout le monde lit quelque chose, mais je ne sais pas qui quoi.
 all the world read.3SG some thing but I NEG know.1SG not who what
 'Everyone read something, but I do not know who what.'

(54) (?)Quoi à qui? / *Qui quoi?
 what to whom / who what
 'What to who(m)? / Who what?'

For the present purposes, the more marginal acceptability of these sluices would actually seem to support a movement-based account of sluicing, given that the non-elided counterparts are fully grammatical (55–56); if the *wh*-word is able to remain in situ, then it is unclear why these sluices should be degraded at all.⁸

⁸ A reviewer notes that fronted multiple *wh*-questions receive pair-list readings, whereas the corresponding in situ questions receive either single-pair or pair-list readings. This is subtle, and it is not clear that this is always the case—rather it seems to depend on the referent of the *wh*-word. In (i), the correlate contains *quelqu'un* (someone), which is a singular indefinite. The interpretation is such that Jean gave a gift to one person; a pair-list response is not felicitous, however a single-pair response perfectly natural (V. Déprez, p.c.).

(i) A: Jean a donné quelque chose à quelqu'un. B: Qu'a-t-il donné à qui?
 Jean has given.PP some thing to someone what-has-he given.PP to whom
 'Jean gave something to someone.' 'What did he give to who(m)?'

- (55) ...je ne sais pas ce que Jean a donné à qui.
 I NEG know.1SG not this that Jean has given.PP to whom
 ‘...I do not know what Jean gave to who(m).’
- (56) ...je ne sais pas qui lit quoi.
 I NEG know.1SG not who read.3SG what
 ‘...I do not know who read what.’

Given that the English data show that multiple sluices are possible in languages without *wh*-in situ, this is reason to be cautious. Either these are not derived via movement in English or French, or these are derived differently in each language— but if it is this latter option, then examples like (52) are not all that informative, making them an unreliable diagnostic.

While I argue that clefting is ruled out, and a non-constituent is problematic for French, it is still an open question as to how *quoi* is surfacing in sluices. In the following sections, I will describe previous approaches to *quoi*-sluices and offer a novel analysis of sluicing in French.

4 Proposed analysis

While sluicing has received a lot of attention in the literature, French has not been the focus of this research, and surprisingly little has been written about *quoi*-sluices in particular. Dagnac (2019) provides an overview of various elliptical constructions, but only briefly mentions *quoi*-sluices; she acknowledges that they are problematic for standard theories of sluicing. She suggests that

-
- A: Il a donné un livre à Marie. [single pair]
 he has given.PPa book to Marie
 ‘He gave a book to Marie.’
- A’: #(Il a donné) un livre à Marie, un chapeau à Jules, et un jeu à Marc. [pair-list]
 he has given.PPa book to Marie a hat to Jules and a game to Marc
 ‘He gave a book to Marie, a hat to Jules, and a game to Marc.’

The same effect of context and the correlate is observed with sluicing, though the degraded nature of these sluices makes comparing the readings for these sluices difficult. Depending on the correlate, only a pair-list response or a single-pair reading is felicitous. Importantly, (ii) has the same interpretation as (i). These readings then seem not to be derived from sluicing per se, but from the larger semantic properties of the matrix clause.

- (ii) A: Jean a donné quelque chose à quelqu’un. B: Quoi à qui ?
 Jean has given.PP some thing to someone what to whom
 ‘A: Jean gave something to everyone. B: What to whom?’

See also Kotek & Barros (2018) for a discussion of interpretative effects for multiple-sluicing.

this construction supports a WYSIWYG/non-deletion approach, in which there is no structure after the *wh*-remnant. The reasons she gives are the following:

- i) The form of the *wh*-word found in sluicing corresponds to the “in situ” variant.
- ii) Sluicing is possible even when *wh*-in situ is not allowed.

She claims that *quoi* may be base-generated, following Chung et al. (1995; 2011)— but perhaps as a feature-bundle— and that there is a null pronoun at the so-called ellipsis site; this pronoun is then interpreted at LF. She suggests, furthermore, that the form of the *wh*-word is determined at PF, as argued for by Sportiche (2008). Dagnac (2019) does not provide a solution for how or why exactly *quoi* is triggered, but she does state that it is unsurprising that *que* is not able to surface when there is no verbal host. While I agree that the availability of a verbal host is in fact crucial to determining the form of the *wh*-word, I diverge from Dagnac (2019) in assuming that these facts indicate a lack of structure.

Ott & Therrien (2020) have recently suggested that *quoi*-sluices involve non-constituent ellipsis, in part due to this same observation that it is the strong form *quoi* that surfaces in sluicing— but this is based on the idea that *quoi* is immobile. Part of their argument comes from the fact that *quoi* does not participate in swiping in Lafontaine French (LFF), a dialect of Ontario (Canadian) French. Swiping is a related construction in which a stranded preposition “swaps” positions with the *wh*-remnant. Note that this is not grammatical in European French.

- (57) Jean a acheté un cadeau, mais je ne sais pas qui pour.
 Jean has bought a gift but I NEG know not who for
 ‘Jean bought a gift, but I don’t know who (he bought a gift) for.’

Unlike *qui* as in example like (57), *quoi* does not ever invert with the preposition. While I do not contest their data, I argue that this is simply not the strongest evidence for non-constituent ellipsis, and that non-constituent ellipsis would still not explain the sluicing facts. This is for several reasons: (i) Ott & Therrien note that there are actually several *wh*-words that do not participate in swiping in LFF, and that acceptability in swiping in LFF cannot be reduced to simplex vs. complex *wh*-words, as suggested for swiping in other languages (Merchant 2002). This suggests that there may be several factors at play, given that there are *wh*-words that resist swiping (e.g. *quel* ‘which’) that are not restricted from moving in LFF (examples 58–60 from Ott & Therrien).

- (58) A: Marie a reçu des fleurs. B: *Quel prétendant de?
 Mary has received some flowers which suitor from
 A: ‘Mary received some flowers.’ B: ‘From which suitor?’

- (59) Quel prétendant est-ce qu'elle a reçu des fleurs de?
 which suitor is-it that-she has received some flowers from
 'Which suitor did she receive flowers from?'
- (60) De quel prétendant?
 from which suitor
 'From which suitor?'

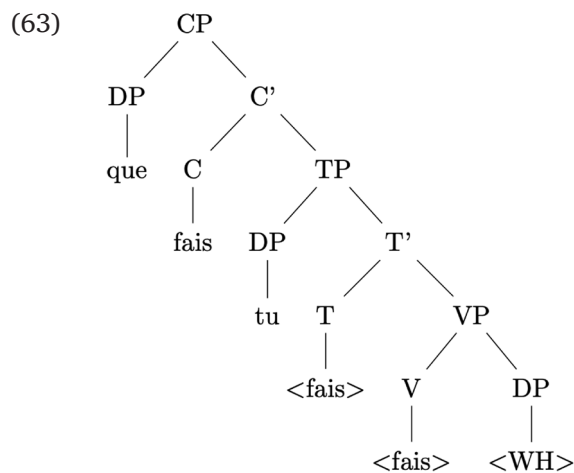
But putting aside the swiping data, particularly because there is no parallel in European French, (ii) it is simply not the case that *quoi* is “immobile” – as discussed at length in Section 3. As mentioned, although *quoi* is the form found in *wh*-in situ questions, it is also found in a fronted position in finite questions when inside larger phrases, such as in PPs and coordinated phrases, as well as in infinitival questions. Ott & Therrien call fronted questions with *à quoi* and *de quoi* (PPs) “exceptions” but there is no obvious reason why these should be considered as such. As I will argue in this section, the ability for *quoi* to surface in these constructions is in fact critical in capturing the more general pattern of when this form is able to surface.

- (61) a. Tu manges quoi? [*quoi* in an in situ position alone]
 you eat.2SG what
 'What are you eating?'
- b. *Quoi tu manges?
 what you eat.2SG
 'What are you eating?'
- (62) a. Tu joues de quoi? [*quoi* in both fronted and in situ positions]
 you play.2SG of what
 'What are you playing?'
- b. De quoi tu joues?
 of what you play.2SG
 'What are you playing?'

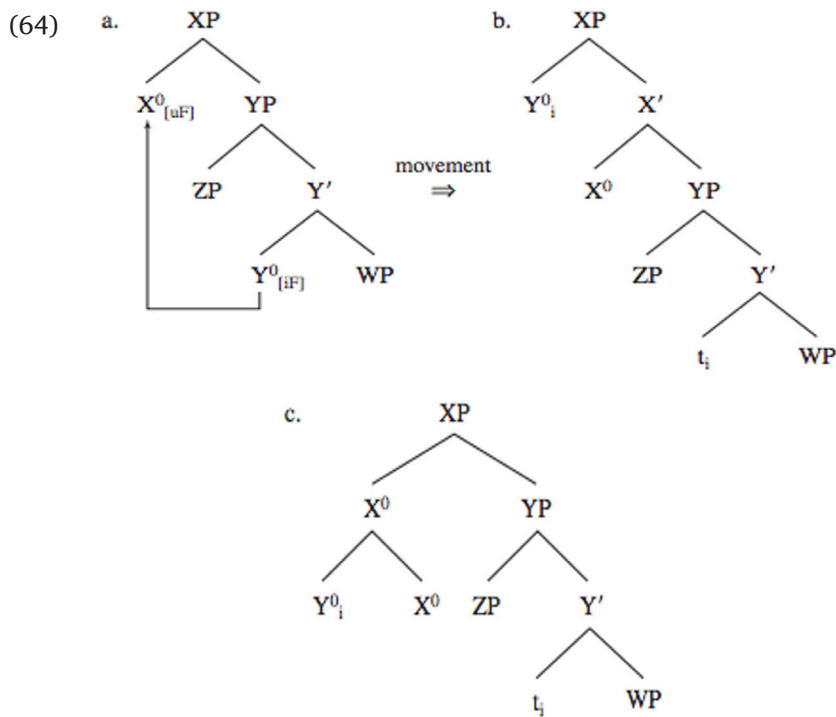
If *quoi* were truly immobile, we would not expect for it to surface anywhere except its base in situ position, contra the data. Moreover, I argue that these previous analyses miss an important generalization about where *quoi* (and *que*) surface. The general pattern that I have highlighted in Section 3 is that *que* is actually the more restricted form—it is only found when there is a C+V head, a verbal host. In all other environments, the *wh*-word is *quoi*. In this section I will argue that the form of the *wh*-word is misleading. In a preview of my analysis, I will argue that movement is not what is responsible for one form or the other per se. That

is, movement or no movement, the strong form will be realized when there is no adjacent, structural relation to a C+V head. Previous analyses are sluicing-specific solutions, but do not connect to properties of French grammar as a whole. Here I argue for an analysis that is both (i) amenable to the MDA, while explaining how *quoi*-sluices with embedded questions are possible, and crucially (ii) able to capture the behavior of *quoi* in French more generally. I formulate an account that relies on Distributed Morphology, with context-sensitive Vocabulary Insertion (VI) rules.

I start by adopting the well-known distinction between strong and weak forms in French (see Section 3). The form of the wh-word is sensitive to whether or not there is a verbal host, and whether or not this verb and the wh-word are in a local relationship—specifically, if the V is in C and the wh-word has moved into CP (as in matrix wh-questions, see (63)).

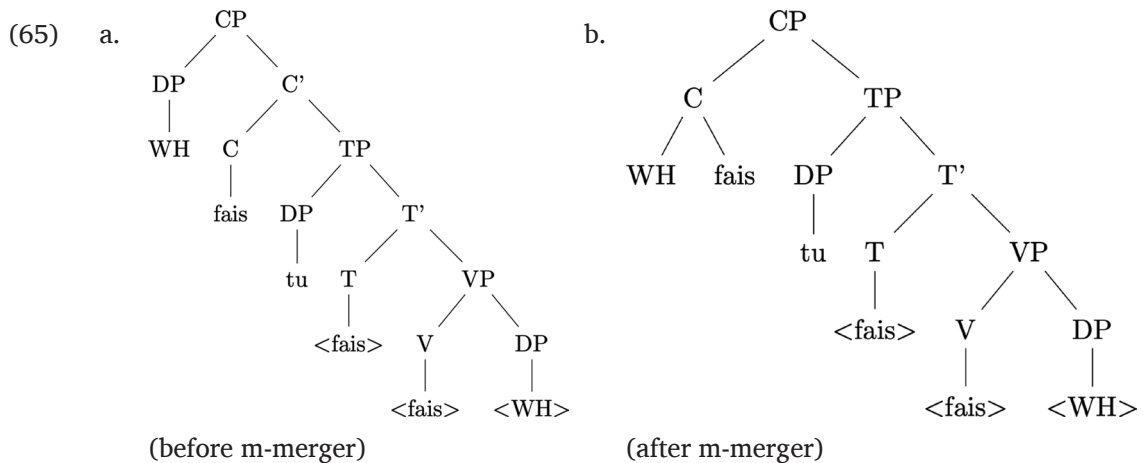


Additionally, I am following a late insertion approach in assuming that the wh-word is initially represented in the narrow syntax as an abstract wh-feature bundle (with minimally a +wh and –human feature). Specifically, I assume the framework of Distributed Morphology, in which the morphological form of a feature(s) is determined via Vocabulary Insertion (VI) rules; these rules are sensitive to the environment in which the feature(s) in question is found. I argue that the Vocabulary Insertion (VI) rules that determine the form of the wh-word in French are sensitive to the relation between the wh-feature bundle, the verb, and C. I also follow Matushansky (2006), in interpreting morphological merger (m-merger) as an operation that targets structurally adjacent heads, causing them to adjoin (as in (64) below). Matushansky (2006) crucially proposes that maximal, non-branching phrasal projections behave syntactically like heads as well. In other words, the specifier and head may merge if the phrase in this specifier position is (i) a maximal projection, and (ii) in a local configuration with the head. Otherwise m-merger is not able to apply.



(from Matushansky 2006)

I argue that in matrix questions, when the wh-feature bundle moves to the specifier of CP and the verb moves to C, m-merger is able to apply (causing the wh to adjoin to the complex C head). I assume the structure below, based on Matushansky (2006).⁹



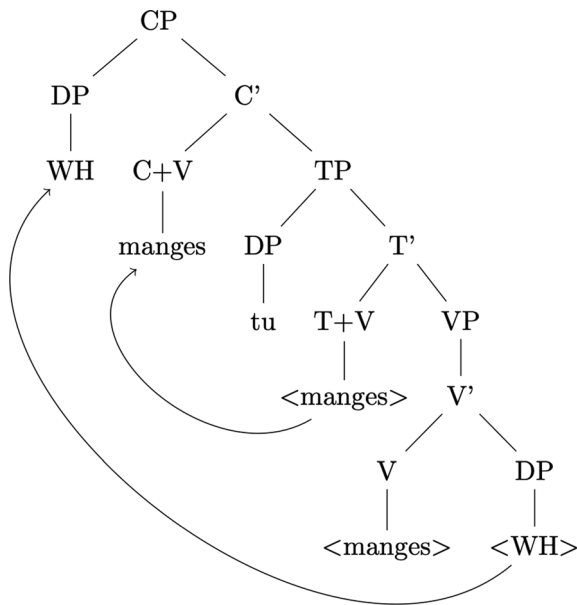
In this case, I propose that the VI rule in (66) applies. This rule states that the wh-feature bundle is realized as the wh-clitic when there is a local verbal host.

⁹ In these trees, WH is short for the entire wh-feature bundle. I assume that movement is to check a wh-feature.

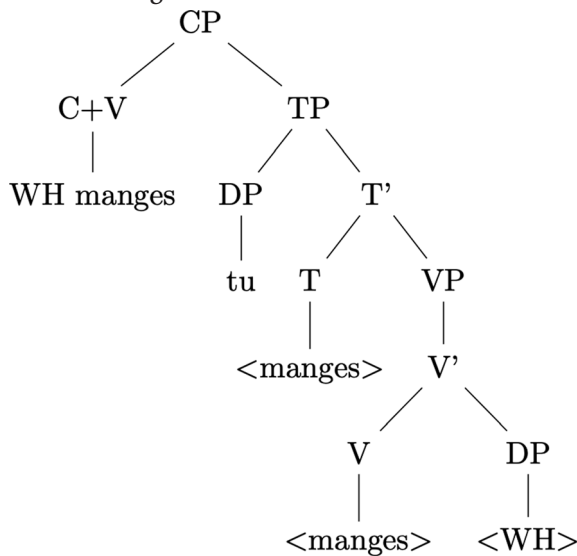
(66) [+wh, -human] ⇔ *que*/ [__ +V]

This rule is exemplified in (67); this matrix question is derived by first moving the verb and wh-feature bundle to CP (step (a)), followed by merging the wh-clitic with the verbal host (step (b)). This is possible in this example because the wh-feature bundle is structurally adjacent to the C+V head; in other words, it is not part of a larger phrase that would exclude m-merger. At this point, the VI rule dictates that the wh-feature bundle is to be spelled out as *que* (step (c)).

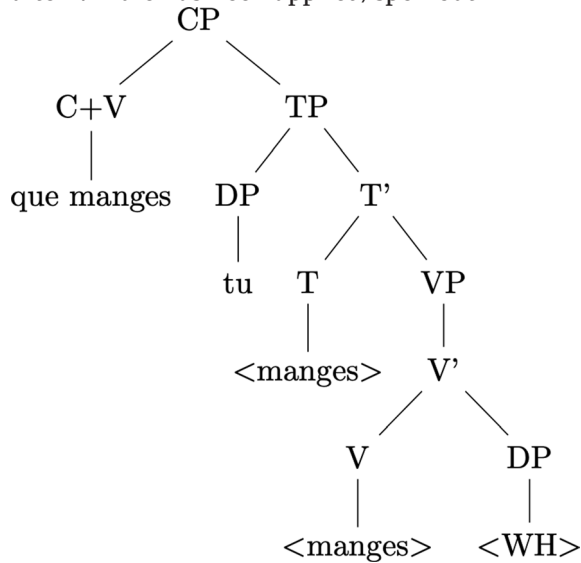
(67) a. after movement



b. after m-merger



c. after VI rule has been applied/spell out



Consistent with the idea that the m-merger has applied in these contexts is the observation that material may not intervene between the wh-clitic and the verb, as illustrated in (68–69).

(68) a. *Que, à ton avis, doit-il faire?
 what at your opinion must.3SG-he do.INF
 ‘What, in your opinion, must he do?’

b. Que doit-il faire, à ton avis?
 what must.3SG-he do.INF at your opinion
 ‘What must he do, in your opinion?’

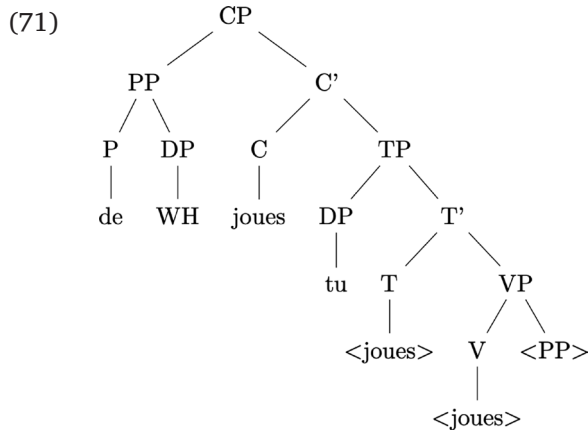
(69) a. *Que, en se préparant à l’examen, doit-il faire?
 what in self preparing to the-exam must.3SG-he do.INF
 ‘What, in preparing for the exam, must he do?’

b. Que doit-il faire en se préparant à l’examen?
 what must.3SG-he do.INF in SELF preparing to the-exam
 ‘What must he do in preparing for the exam?’

If the wh-feature bundle moves as part of a larger phrase (such as a PP), however, then it is a non-maximal projection, and m-merger is not able to apply. This results in the strong version of the wh-word surfacing, as indicated in the VI rule in (70). In other words, that it is not enough for there to be a complex C+V head, but that the wh-feature bundle must be in a local relationship with this complex head; that is, linear adjacency to the verb is not sufficient,

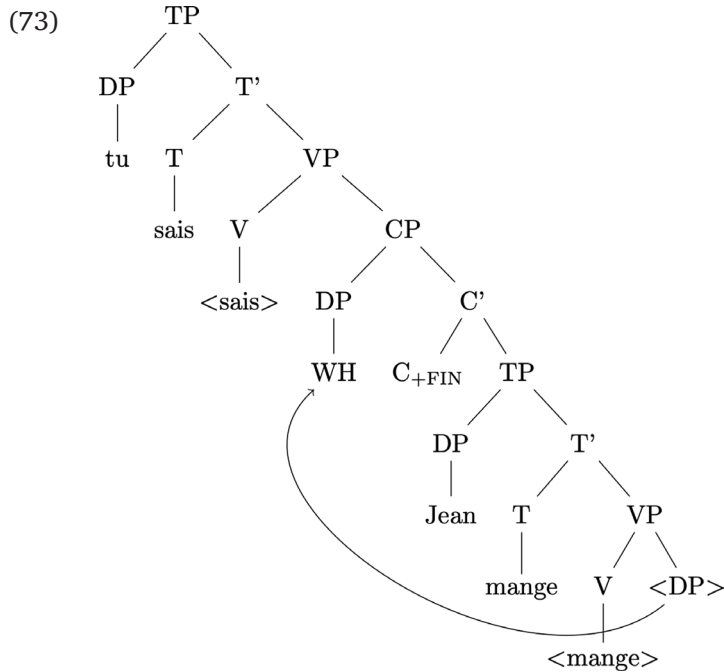
otherwise it would be predicted that anytime the wh-word is simply next to the verb *que* could surface.

(70) [+wh, -human] ⇔ *quoi*/ elsewhere



In embedded questions, an additional rule must apply, as V-to-C movement is not possible, and the wh-bundle is not able to remain in situ (as embedded clauses are the one context in which wh-in situ is not grammatical in French). In these environments, *ce que* surfaces, as specified in (72).

(72) [+wh, -human] ⇔ *ce que*/[+C_[+WH, +FIN]]



These VI rules provide a straightforward explanation for how full (non-elided) *wh*-questions in French behave. In sum, the *wh*-clitic will only surface if there has been *m*-merger with a complex *C* + *V* head. In all other cases, *m*-merger either cannot apply (in turn blocking the VI rule in 66), or there is no requisite verbal host.

Turning now to sluicing, only the strong form surfaces (74), whereas in the non-elided variant only *ce que* is possible.¹⁰

- (74) a. Jean mange quelque chose, mais je ne sais pas quoi/*que/*ce que.
 Jean eat.3SG some thing but I NEG know.1SG not what
 ‘Jean is eating something, but I do not know what.’
- b. Jean mange quelque chose, mais je ne sais pas ce que Jean mange.
 Jean eat.3G some thing but I NEG know.1SG not this that Jean eat.3SG
 ‘Jean is eating something, but I do not know what Jean is eating.’

The form of the *wh*-word in the non-elided variant is not surprising, as the *wh*-bundle is moving within the embedded clause; there is no verb movement from *T* to *C*, and thus no verbal host and no complex *C* + *V* head. The VI rule in (66) cannot apply, but there is still a local relation between the *wh*-bundle and *C*, triggering (72).

In the sluiced variant, the fact that *quoi* surfaces suggests that there is no local relation with *C*. Although sluicing has traditionally been thought of as *TP*-deletion, it has long been noticed that material in *C* does not survive sluicing, which has given rise to the Sluicing-COMP generalization. Building on this, Thoms (2010) argues that sluicing targets the complement of the moved element, which would mean that *C* + *TP* is deleted. In other words, sluicing is a by-product of movement. Assuming that *C* is elided before the spell-out rules proposed here are applied, this would provide a natural explanation for why only *quoi* is possible in sluicing contexts: there is no *C* head.¹¹ Here I follow the Ellipsis-Morphology Generalization (Elmo) as defined by Saab & Lipták (2016), which claims that ellipsis is able to block vocabulary insertion, and other morphological processes. Elmo is formulated as follows:

¹⁰ Some French speakers report that they can also use *quoi* in the non-elided variant in (74b); this would suggest that although the bare *que* form cannot appear on its own, as predicted (no *V-T-C* movement), some may choose to use a strong form instead. This might point to language change in progress, where for these speakers any time there is no complex *C* + *V* head the form *quoi* is triggered.

¹¹ The more classic approaches to ellipsis assume that deletion happens at *PF*. Elmo assumes that ellipsis could happen either at *PF*, before VI rules are applied, or in the narrow syntax. This latter assumption may be seen as a somewhat more “controversial” claim. What is particularly novel about this approach by Saab & Lipták—and others like it—is the timing aspect to it, and the idea that ellipsis bleeds other processes. In other words, what is crucial for my analysis is that ellipsis must happen at some point before the VI rules are applied.

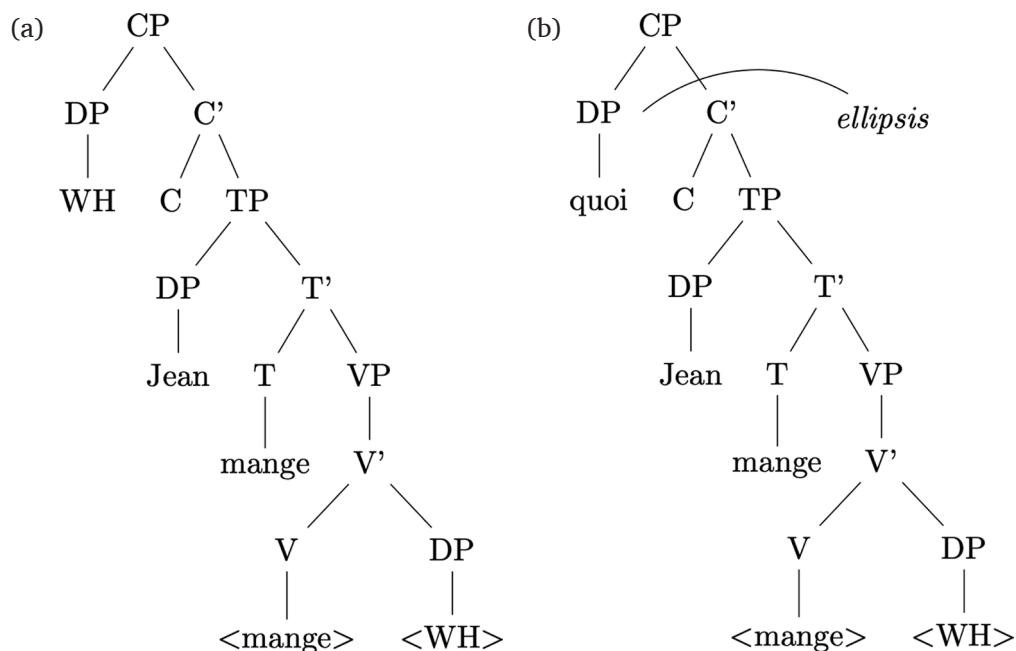
Ellipsis-Morphology (Elmo) Generalization (Saab & Lipták 2016: 77):

For every morphological operation MO that affects the domain of X, where X contains the target of MO, MO cannot apply in X if X is subject to ellipsis.

As Saab & Lipták explain, “The theoretical consequence of such an empirical observation is that ellipsis should apply *before spell-out or at the spell-out point* but before morphological operations. In [other] words [...] phrasal ellipsis could be conceived as a part of the narrow syntax” (emphasis added). In the case of French, the environment for both *que* and *ce que* to be inserted has been removed before the VI rules proposed here apply, causing only *quoi* to surface.

Taking together the claim that the complement of a moved element is able to be elided (Thoms 2010) and the Elmo, I argue that the wh-feature bundle first moves into its position in CP, at which point the complement of the moved wh-feature bundle is eligible for deletion. Merchant (2001) has traditionally proposed that movement precedes ellipsis (a); I assume this here as well, but additionally argue that both movement and ellipsis precede spell-out of the VI rules (b).

- (75) Jean mange quelque chose, mais je ne sais pas...
 Jean eat.3SG some thing but I NEG know.1SG not
 ‘Jean is eating something, but I do not know...’



In other words, the form of the *wh*-word in French is predictable and depends on the environment (see the VI rules repeated below in (76)). This analysis explains why *quoi* surfaces in *wh*-in situ questions, why *que* is restricted to matrix position, and why only *quoi* is possible with sluicing. Importantly, this analysis builds on previous theories that suggest timing matters, and that ellipsis may bleed, or otherwise interact with, morphological processes (Fuß 2008; Saab 2009; Schoorlemmer & Temmerman 2010; 2012; Stjepanović 2011; Temmerman 2012; Saab & Lipták 2016; Banerjee 2020; Sailor 2021; among others). If this were not the case, it would be harder to explain why the elided and non-elided variants (with *ce que*) could not be the same in French without making additional stipulations.

(76) Vocabulary Insertion Rules:

- a. [+wh, -human] \Leftrightarrow *que*/ [__ + V]
- b. [+wh, -human] \Leftrightarrow *quoi*/ elsewhere
- c. [+wh, -human] \Leftrightarrow *ó ce que*/ [__ + C_[+WH, +FIN]]

(77) Vocabulary Insertion Before Ellipsis (= ungrammatical result)

Jean mange quelque chose...

Jean eat.3SG some thing

‘Jean is eating something...’

- a. ...mais je sais pas [CP [C [Jean mange [+wh]]]].
but I know.1SG not Jean eat.3SG
- b. ...mais je sais pas [CP [+wh] [C [Jean mange <wh>]]].movement
but I know.1SG not Jean eat.3SG
- c. ...mais je sais pas [CP ce que [C [Jean mange <wh>]]]. rule (76c)
but I know.1SG not what Jean eat.3SG
- d. ...mais je sais pas [CP ce que [C ~~Jean mange <wh>~~]].ellipsis
but I know.1SG not what Jean eat.3SG
- e. *...mais je sais pas ce que.
but I know.1SG not what
‘...but I do not know what.’

(78) Ellipsis Before Vocabulary Insertion (= grammatical result)

Jean mange quelque chose...

Jean eat.3SG some thing

‘Jean is eating something...’

- a. ...mais je sais pas [CP [C [Jean mange [+wh]]]].
but I know.1SG not Jean eat.3SG

- b. ...mais je sais pas [CP [+wh] [C [Jean mange <wh>]]. movement
 but I know.1SG not Jean eat.3SG
- c. ...mais je sais pas [CP [+wh] [~~C~~ [Jean mange <wh>]]. ellipsis
 but I know.1SG not Jean eat.3SG
- d. ...mais je sais pas quoi. rule (76b)
 but I know.1SG not what
 ‘...but I do not know what.’

Returning to infinitives, which are compatible with either wh-form, the optionality may at first seem at odds with these rules, but I argue that the location of the wh-feature bundle is critical. Recall that with finite wh-questions, the wh-feature bundle may move (for fronted wh-questions) or remain in situ (79). With infinitival questions, the wh-feature bundle seemingly must move, as it is not possible to have the wh-word in a post-verbal position—regardless of its form (80).

- (79) a. Que fais-tu?
 what do.2SG-you
 ‘What are you doing?’
- b. Tu fais quoi?
 you do.2SG what
 ‘What are you doing?’
- (80) a. Que/quoi faire?
 what do.INF
 ‘What do do?’
- b. Faire que/quoi?
 do.INF what
 Lit. ‘To do what?’

Following Déprez (1989), Pollock (1989), and Kayne (1991), non-finite auxiliaries may optionally move to T (81), whereas lexical infinitives in (modern) French do not move into T, as evidenced by the fact that they stay below negation (82).

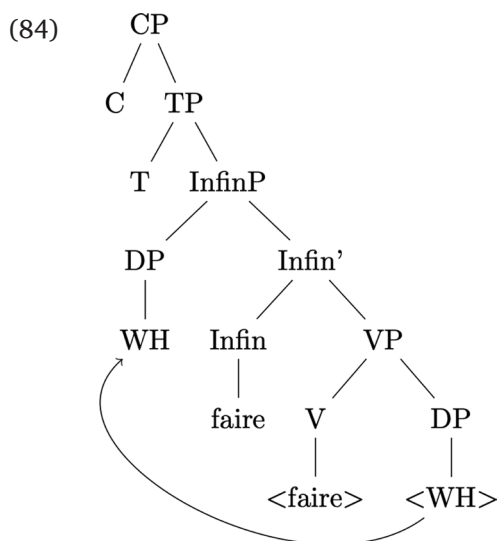
- (81) Déprez (1989)
- a. Où être invité, où ne pas être invité?
 where be.INF invited where NEG not be.INF invited
 ‘Where to be invited, where not to be invited?’
- b. *Où être invité, où n’être pas invité ?
 where be.INF invited where NEG-be.INF not invited

- (82) Déprez (1989)
- a. Ne pas manger de sucre.
NEG not eat.INF of sugar
'Do not eat sugar.'
- b. *Ne manger pas de sucre.
NEG eat.INF not of sugar
'Do not eat sugar.'

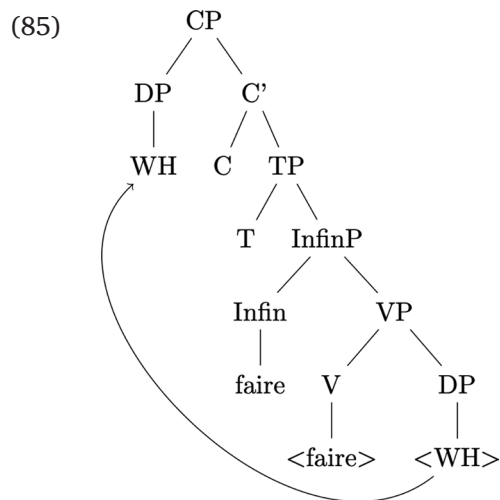
Pollock (1989) and Kayne (1991) note that lexical infinitives do not move to T, but that they may optionally “short move” to an intermediate InfnP position (using Kayne’s terminology). Evidence for this movement comes from the relative placement of adverbs, which follow the infinitive (83). Numerous examples like these are found on travel blogs.

- (83) a. Que/quoi faire aujourd’hui à Paris?
what do.INF today at Paris
'What to do today in Paris?'
- b. Comment préparer efficacement un marathon?
how prepare.INF effectively a marathon
'How to effectively prepare for a marathon?'

Thus, the infinitive, unlike the finite verb, does not move to C. Given that the wh-feature bundle always seems to move in non-finite clauses, I argue that it may also “short move” to InfnP, such that it is adjacent to the verb, but not higher. When this happens, the wh-feature bundle would be realized as *que* given the VI rule [+wh, -human] \Leftrightarrow *que*/ [__ +V]. That is, the wh-feature bundle would still be able to merge with the verb. When this happens, the form of the infinitival wh-question would be *que* not *quoi*.



When the wh-feature bundle moves to CP, however, the wh-feature bundle would be too far away from the verb, m-merger would not be able to apply, and the elsewhere form would be triggered.



It remains an open question as to why the wh-word cannot remain in its actual base position, unlike what is seen with finite wh-questions. However, this account would mean that the “optionality” in forms for non-finite questions is really optionality in terms of movement, which is what is already attested in the grammar in terms of the *grammaticality* of both fronted and wh-in situ questions. Thus if we assume that the wh-feature bundle can either be structurally adjacent to the verb or not, then we get a unified pattern for both the finite and non-finite cases.

Support for this analysis comes from cases where the optionality between *que* and *quoi* disappears: (i) examples where the wh-word is part of a larger phrase, e.g. a PP and (ii) examples with negation. Starting with (i), we see that only *quoi* is able to surface (86a), which parallels the finite variants of these same questions (86b).

- (86)
- a. De quoi parler avec une fille?
of what talk.INF with a girl
'What to talk about with a girl?'
 - b. De quoi on parle avec une fille?
of what one talk.3SG with a girl
'What does one talk about with a girl?'
 - c. *De que parler avec une fille?
of what talk.INF with a girl
'What to talk about with a girl?'
 - d. *De qu'on parle avec une fille?
of what-one talk.3SG with a girl
'What does one talk about with a girl?'

In addition, this optionality between *que* and *quoi* seems to erode when negation is thrown into the mix. When negation (*pas*) intervenes between the wh-word and the infinitive, *quoi* is the only grammatical option—or, at the very least, *que* is degraded.

(87) example from Google:
 Quoi ne pas faire en déco?
 what NEG not do.INF in decoration
 ‘What not to do when decorating?’

(88) a. Que faire?
 what do.INF
 ‘What to do?’
 b. ?/* Que ne pas faire?
 what NEG not do.INF
 ‘What not to do?’

This would suggest that negation blocks *que* from being triggered, as *pas* would intervene between the wh-feature bundle and the verb. While counter-examples exist (see 89, from Google) these are arguably rare, and seem to be non-standard. That is to say that, for example, (90) seems to really be two questions condensed into one—*what to do and what not to do?* If this is the case, then (89) may essentially be “shorthand” for (90).

(89) Que (ne pas) faire pour protéger la nature?
 what (NEG not) do.INF for protect.INF the nature
 ‘What (not) to do to protect nature?’

(90) Que faire [...] et quoi ne pas faire pour protéger la nature?
 what do.INF and what NEG not do.INF for protect.INF the nature
 ‘What to do to protect nature and what not to do to protect nature?’

Lastly, while the focus here has been on *que* (and other bare wh-words), French actually has several strategies for forming wh-questions. It is possible to use *est-ce que* in between the wh-word and the matrix subject (91b). This element has been interpreted as a complex complementizer (Rooryck 1994), and as such is typically analyzed as a whole—not decomposed. However, following a DM-style analysis here, I argue that while this is a C, it contains a verbal element, i.e. the inverted cleft. This is partly based on the fact that we have already seen that verbs invert in this position, and it seems non-coincidental that *est-ce* contains a recognizable form of the copula. In fact, *est-ce que* is argued to have originated in Old French as its own clause, and fossilized as a single element over time (see e.g., Dufter 2008). While I maintain the assumption that this is a complex C, I argue that this C is able to serve as a verbal host. Turning specifically to *qu’est-ce que* ‘what’ (92b), I claim that this form follows from the analysis proposed here as well,

if we assume that the *wh*-feature bundle merges with this complex *C*. The same rules introduced above would apply, yielding *que* + *est-ce que* (92b).

- (91) a. Où vas-tu?
 where go.2SG-you
 ‘Where are you going?’
 b. Où est-ce que tu vas?
 where ESK you go.2SG
 ‘Where are you going?’
- (92) a. Que fais-tu?
 what do.2SG-you
 ‘What are you doing?’
 b. Qu’est-ce que tu fais?
 what-ESK you do.2SG
 ‘What are you doing?’

5 Discussion

This analysis provides a systematic way to account for the distribution of *que* and *quoi* more generally in French. Nonetheless, a possible objection to this analysis could be aggressively non-d-linked phrases (e.g. *que diable*), in which the rules as stated seem to predict that *que* should be impossible in this environment because it is not adjacent to the verb. First, I argue that there are essentially two variants of *que diable* – one that functions as a stand-alone, non-information-seeking exclamative, the other that is productive and found in information-seeking questions.

When *que diable* surfaces on its own, it is not clear that it is behaving as a question—rather, it seems to be behaving like an exclamative (see Pesetsky 1987). Pesetsky notes that such exclamatives express surprise and/or frustration. Along these lines, when these are used as matrix sluices, they do not seem to be information-seeking. It seems strange to respond to *que diable?!* with an actual answer, as in (93), whereas it is completely natural to provide one to a non-elided question with *que diable* (as in (94)); this holds true for English and for French.

- (93) A: Jean mange quelque chose.
 Jean eat.3SG some thing
 ‘Jean is eating something.’
 B: Que diable?!
 what devil
 ‘What the hell?!’
 A: #Un sandwich.
 a sandwich
 ‘A sandwich.’

- (94) A: Que diable mange-t-il?
 what devil eat.3SG-he
 ‘What the hell is he eating?’
- B: Un sandwich.
 a sandwich
 ‘A sandwich.’

Relatedly, fragment questions with *what the hell* (in English) and *que diable* (in French) always seem to be felicitous, unlike full wh-questions with these same expressions, which may become ungrammatical—or at least infelicitous—depending on the antecedent.

- (95) A: J’ai vu quelqu’un ce matin.
 I-have.1SG seen.PP someone this morning
 ‘I saw someone this morning.’
- B: Que diable?! (À cette heure!)
 what devil (at this hour)
 ‘What the hell?! (At this hour!)’
- B’: #Que diable as-tu vu?!
 what devil have-you seen.PP
 ‘What the hell did you see?!’

For these reasons, *que diable* in fragment questions seems to be somewhat of a frozen form.

Turning, then, to cases where *que* is found with *diable* in full wh-questions, we see that *diable* seems to intervene between the wh-word and the verbal host. As previously argued, these examples may be explained if *que diable* is acting as a simplex head, where *diable* is actually a head-modifier. The reasoning for this claim is based on the following facts. First, we see obligatory V-T-C movement, just as with bare *que* (96). This suggests that a verbal host is still needed.

- (96) a. Que diable a-t-il dit?
 what devil have.3SG-he said
 ‘What the hell did he say?’
- b. *Que diable il a dit?
 what devil he have.3SG said
 Lit. ‘What the hell he said?’

Moreover, we also find *quoi* with *diable*, but only in environments where we would normally expect to find *quoi* – namely when the wh-feature bundle is part of a larger constituent (see 97, from Google).

- (97) À quoi diable pensez-vous?
 to what devil think.2PL-you.PL
 ‘What the hell are you thinking?’

In other words, we observe the same distribution with *que* and *quoi* as we do without *diab**le*, which seem to suggest it is acting as a single unit. In terms of sluicing, however, neither *que diab**le* nor *quoi diab**le* is a possible wh-remnant since there is a cross-linguistic ban on aggressively non-D-linked expressions in final position (see Merchant 2001; Sprouse 2006; den Dikken & Giannakidou 2002; among others).

- (98) *Jean mange quelque chose, mais je ne sais pas que diab*le*.
 Jean eat.3SG some thing but I NEG know.1SG not what devil
 ‘Jean is eating something, but I do not know what the hell.’

The distribution of *que* and *quoi* in coordinated questions is perhaps more intriguing. There are different theories as to how to analyze coordinated questions. One approach is to consider the individual wh-phrases as being coordinated, forming a ConjP (as adopted here). Another approach is to assume that two CPs are being coordinated, and that there is ellipsis within the first conjunct (see Giannakidou & Merchant 1998; Citko & Gracanin-Yuksek 2013; among others). Given that in finite coordinated questions only *quoi* is possible, this seems to suggest that a verbal host is not local enough (or available) for *que* to surface.

- (99) a. Qui ou quoi est à la porte?
 who or what be.3SG at the door
 ‘Who or what is at the door?’
 b. *Qui ou qu’est à la porte?
 who or what-be.3SG at the door
 ‘Who or what is at the door?’

In non-finite questions with coordinated subjects, however, both *que* and *quoi* are grammatical. Again, based on what is known about *que* in French more generally, the ability for it to surface here suggests that it must have a local relation with the verbal host at some point in the derivation. This seems to indicate that finite and non-finite coordinated wh-questions behave differently. It is possible that French has more than one strategy for coordination—which by itself is perhaps not that unusual (see Citko & Gracanin-Yuksek 2013)—although why this availability depends on finiteness is unclear. I put this issue aside for future research.

- (100) a. [Où et quoi] manger à Lille?
 where and what eat.INF at Lille
 ‘Where and what to eat in Lille?’
 b. [Où manger (à Lille)] et que manger à Lille?
 where eat.INF (at Lille) and what eat.INF at Lille
 ‘Where and what to eat at Lille?’

5.1 Possible alternative?

Van Craenenbroeck & Temmerman (2019) recently proposed the following analysis, concurrent to mine, where the form of the *wh*-word is also determined via context-sensitive VI rules, specifically those in (101). They assume that ‘what’ is embedded within a DP, which moves to CP, and that these rules specify the form of D, and not the *wh*-word per se.

- (101) a. $D \Leftrightarrow ce/V$ [CP _ *que* [C ...]]
 b. $D \Leftrightarrow 0$ / [CP __ *que* [C ...]]
 c. $D \Leftrightarrow -oi$ / elsewhere

As the rules are written, the first rules state that *ce* is inserted within a CP before *que*, and directly after a V. Nothing will be inserted if there is no V before the CP. The form *quoi* surfaces elsewhere. My assumption is that they are interpreting *que* as a head, and there is head-movement into D, where the *que* form merges with *-oi*—although this is not explicitly stated. This analysis results in several incorrect predictions. In its current form, it is potentially problematic for cases where there is intervening material between the verb and CP, such as negation, unless it is assumed spell-out happens before the verb moves higher than *pas* (a head in a NegP projection) for cases like (102). The issue remains, however, that additional stipulations will need to be made if there is no linear adjacency, which these rules seem to require.

- (102) Je ne sais pas ce que tu fais.
 I NEG know.1SG not this that you do.2SG
 ‘I do not know what you are doing.’

Additionally, because neither verb movement or the status of *que* is taken into account under these rules, it is not clear (i) what all constitutes an “elsewhere” environment given that rule (b) above does not require a C + V head, and relatedly (ii) why both *que* and *quoi* are able to surface with infinitival questions. Their rule predicts that only *que* should surface, contrary to fact. As a result, I argue that this misses the more general pattern of when *que* and *quoi* may appear, including the important distinction between structural adjacency and linear adjacency, such that only contexts in which m-merger is possible do we see *que*. Thus, while Van Craenenbroeck & Temmerman (2019) are able to account for some of the data, they are not able to account for all of it.

Lastly, there are also certain theoretical concerns. Their approach assumes the environment before and after the D-head matters for deriving the form *ce que*. This is a bit unusual for VI rules within the Distributed Morphology framework, where usually it is *either* the environment before or after the element that triggers the rule; few examples seem to support the idea that both matter (see discussion in Embick 2010). For these reasons, while our analyses share certain assumptions, I argue that the analysis proposed in this paper better supports the data.

5.2 Cross-linguistic implications

While the proposed analysis has been based on French, there are crucial implications that also extend beyond this language. This analysis relies on the assumption that C is deleted along with TP to explain why the form of the *wh*-word differs in the elided and non-elided variants. Although this is bolstered by the Sluicing-COMP generalization, we might also ask if there are other languages that display similar asymmetries that seem tied to C— and indeed there appears to be such cross-linguistic support. An example comes from Indonesian. In this language, there is a question marker *kah* that optionally attaches to the *wh*-word in matrix *wh*-questions, but never appears with *wh*-remnants in sluicing (examples from Fortin 2007). At first glance, this too seems to suggest that there has not been movement or that there is pseudo-sluicing. Just as in French, however, closer inspection suggests otherwise. Fortin (2007) and Sato (2008) argue that this question-marker is located in C. If we assume that C is deleted along with TP, then the fact that *kah* is not found in sluices receives a straightforward explanation; *kah* cannot surface in this environment because all structure below the moved *wh*-word has been elided.

(103) Siapa(kah) yang akan diundang Pak Ali?
 who(-QUES) COMP FUT PASS-invite Mr. Ali
 ‘Who will be invited by Pak Ali?’

(104) Saya dengar Pak Ali mengundang seseorang ke pestanya, tapi (saya) tidak tahu
 1SG hear Mr. Ali meng-invite someone to party-3SG but (1SG) NEG know
 siapa(*kah)
 who(*QUES)
 ‘I heard Pak Ali invited someone to the party, but (I) don’t know who(*kah)’

In addition, this analysis also builds on previous assumptions in the literature that strong and weak/clitic forms are allomorphs conditioned by the environment, and that sluicing may delete the environment that would normally trigger a particular VI rule. If this claim is correct, we would expect that other languages with both strong and weak/clitic variants of *wh*-words would likewise display similar asymmetries with sluicing. This also seems to have some support, this time from the Italian dialect of Caveragno. In most varieties of Italian, *wh*-questions are formed via overt *wh*-movement. Caveragno, however, is more like French in allowing both fronted and in situ questions (although, unlike French, *wh*-in situ questions seem to signal surprise). Donzelli (2018) claims that Caveragno does not have *wh*-clitics, but nevertheless has three forms of the *wh*-word ‘what’: *cosa*, *cu*, and *cuz*— and just as in French, there is a predictable pattern as far as their distribution. Only *cosa* is able to stand alone, as in fragment questions, see (105a) below. This reflects what we see in French sluices, where only *quoi* is possible (105b). The form *cu* is found in so-called “*wh*-*che*” constructions—that is, where the *wh*-word precedes the complementizer ‘that’ (106a). Note that *che* seems to be the standard form in Lombardi dialects, but in Caveragno it corresponds to *c*, at least in these examples from Donzelli. This again is similar to what we see in French with *ce que* (106b). This *wh*-word in

Caveragno is able to surface in matrix position by itself, however. The form *cuz* (or *cus*) is found in clefts (107–108), where there is subject-clitic inversion—just as with *que* in fronted wh-questions in French. Caveragno examples are from Donzelli (2018).¹²

- (105) a. *Caveragno*
Cosa/*cu/*cuz?
what
'What?'
- b. *French*
Quoi/*que/*ce que?
what
'What?'
- (106) a. *Caveragno*
Cu c u fa?
'What do you do?'
- b. *French*
(Je sais) ce que tu fais.
I know.1SG what you do.2SG
'I know what you do.'
- (107) Cuz è-u c u fa?
'What is it that you do?'
- (108) A i ét mangèu cus è-u!?
'What did you eat?'

The distribution of these wh-forms in Caveragno is not completely analogous to French, as the licensing conditions are clearly different—but there are nevertheless important similarities:

- (i) Only one form (*cosa*) is able to stand alone.
- (ii) One form (*cu*) seems to need (or at least cooccur with) another element in CP.
- (iii) One form (*cus/cuz*) requires SCLI.

All of this supports the idea that similar Vocabulary Insertion rules determine the distribution of the form of the wh-word in Caveragno Italian.

6 Conclusion

This paper began with a puzzle concerning sluicing in French, in which the form of the wh-remnant not only suggests that the wh-word remains in situ, but also that the form in the non-elided variant and the sluice differ. In attempting to account for this puzzle, I have considered the

¹² Glosses for Caveragno not provided in the original text for examples (105–108).

wh-questions and these forms more generally, arguing that clues for how sluicing behaves are found in the grammar, beyond elliptical contexts. Here I have argued that French sluices are derived via movement, in spite of any temptation to analyze them otherwise.

I claim that the distribution of *que* and *quoi* (and *ce que*) is, in fact, predictable, and that these morphological forms are determined via the syntactic environment. Specifically, this analysis builds on the observation that *que* is dependent on a verbal host. Only when wh-word is structurally adjacent to (and thus able to merge with, following m-merger; Matsushansky 2006) the verb does it emerge as *que*— in all other cases the strong form surfaces. If we assume that sluicing bleeds the environment needed for *que* to appear, as the complex verbal head C + V is deleted, this explains why *quoi* is the only possible form in this environment. In other words, in this analysis the wh-remnant always moves in *quoi*-sluices; its form is the result of the lack of C + V, and not the lack of either movement or structure (contra Dagnac 2019). The benefit of this analysis, then, is not only its ability to account for the sluicing puzzle, but its ability to be extended to other syntactic contexts in order to capture more general properties of the language. In this way, I am able to account for the distribution of *quoi*, and not only *quoi*-sluices.

Throughout this paper I have argued that a movement-based account for these sluices is the most appropriate, as opposed to other strategies proposed in the literature, such as clefting and non-constituent ellipsis. While clefting may indeed be an option for sluicing with other wh-words, and while non-constituent ellipsis may be a strategy for other languages (e.g. German), these are not viable options for (European) French. By assuming VI rules that operate across the language and do not require any additional stipulations or mechanisms for sluicing, this proposal is able to provide a uniform analysis of the data, including the “problematic” cases where sluicing is possible when wh-in situ is not.

Lastly, this analysis additionally makes important cross-linguistic predictions as far as what may be attested in other languages with strong and clitic/weak wh-forms. If the inability of *que* to appear in French sluices is tied to the fact that it needs a verbal host, then it is predicted that other languages that have wh-clitics may exhibit similar patterns with sluicing. Although there are not many languages that have both fronted and wh-in situ questions, and separate forms of the wh-word(s), a promising avenue of future research is exploring Italian dialects that exhibit similar asymmetries. Additional data, from more dialects, is needed to confirm a potential cross-linguistic pattern for sluicing in such languages. Crucially, the French data suggests that what is on the surface can be misleading; while finding *quoi* in sluicing contexts may superficially seem to favor a non-structural/non-movement-based approach, it is evident that taking this approach would not only fail to capture properties of French sluicing more generally, but would additionally neglect important connections between the wh-form and the syntactic context in which it is found.

Abbreviations

SG = singular, PL = plural, NEG = negation, PP = past participle, INF = infinitive, ESK = *est-ce que*

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Competing Interests

The author has no competing interests to declare.

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