On What Grounds? - Information, Authority and the Use of Wh-In-Situ in French

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Abstract

The fact that French allows both the moved and the in-situ form in information seeking questions raises issues for several mainstream approaches to the syntax of questions. These approaches center on languages like English, where movement is required, or Mandarin, where movement is not required, and tend to hold that languages vary parametrically between these two options. This paper considers a proposal by Bobaljik & Wurmbrand (2015), treating in-situ questions in French and other optional in-situ languages as syntactically declarative. This raises new issues with respect to the way in which these in-situ constructions derive their questioning force pragmatically. Taking a cue from the usage of biased polar questions such as 'It's raining out?' we explore how speaker and hearer authority, as a function of information access, plays a role in determining which form to use. We conducted two surveys, one exploring the role of the addressee's information (**Exp. 1** - Expertise), and one exploring the role of the speaker's information (**Exp. 2** - Knowledgeability). We found that neither the addressee nor the speaker's information appeared to have a significant effect. In **Exp. 2** we observed that the *wh*-words 'où' (where) and 'combien' (how much) behaved in opposite ways with respect to speaker information. We suggest that this may be due to structural differences between these particular question words. We also note that while we manipulated access to information about the possible answers to the questions, another kind of information (about the event or context of the question) may be relevant to the use of in-situ. We discuss the possibility of running a follow-up study designed to more precisely determine the effects of different kinds of relevant information on the choice of question form.

Contents

1 Introduction

Languages employ diverse strategies to mark sentences as interrogative. In English, for example, the *wh*-phrase in a question must be moved to the front of the sentence, as in (1a). For sentences that contain multiple *wh*-phrases, however, only one question word can move to the front of the sentence. The remaining *wh*-phrases must be left *in-situ*, as in (1b), where 'what' remains in place. In contrast to this, there are languages where all *wh*-phrases must remain in-situ. Mandarin for example, leaves the question word in the position that a non-question word would normally occupy in a declarative sentence (Cheng, Rooryck, et al., 2000). Note in example (2a) that the question word, 'shenme' has stayed in-situ, not moving out to the front of the question. Mandarin also differs from English in that it has available an optional *wh*-particle, 'ne', which can be used to mark a sentence as interrogative.

(1)   a.   Who did John invite to the party?

         b.   Who did John say did what?

(2)   a.   Hufei mai-le   shenme (ne) (Mandarin Chinese)
            Hufei buy-PERF what   PRT
            'What did Hufei buy?'

While there is more diversity than this in how interrogatives are marked, the examples above highlight two basic patterns, characterized by whether or not the *wh*-word must front or remain in-situ.

Given the observed diversity in interrogative marking, linguists have sought to understand what the core syntactic properties of interrogatives are. What common properties underlie languages where movement does or doesn't have to occur? Generative syntacticians have proposed that a core property distinguishing interrogative syntax from declarative is the relationship an interrogative complementizer forms with the *wh*-phrase, i.e. the question word.

The precise way in which this is realized can vary across languages, but this core relation is always assumed to be present. In English, for example, the movement of a *wh*-phrase has been shown to target the SPEC of C in order to check a feature on an interrogative complementizer, while also getting its own features checked. In other languages, this may be accomplished by the null or overt expression of a morpheme in the SPEC of C that checks the features of the interrogative complementizer through an agreement relation. While there is some disagreement about how to formalize this relation, it has been largely agreed that these are the two basic options in languages - either overtly moving the *wh*-phrase, or checking the interrogative features of C without overt movement. In order to account for these two primary options in languages, there has been an effort to condense each of these options into the same basic operation, namely movement of some part or all of the *wh*-phrase. In languages with overt movement, the whole wh-phrase is moved. In wh-in-situ languages, this could be accomplished with covert movement, with feature-movement or via some other strategy. This approach, further, has tended to consider the differences between these languages to be parametric - they employ either the movement strategy, or the in-situ strategy. Under such perspectives, languages share a core abstract (C to *wh*) relation, which can be realized overtly in different ways.

There are, however, certain classes of languages that such a parametric approach has trouble accounting for. They concern in particular those that appear to allow both *wh*-movement and *wh*-in-situ as concurrent options within the same grammar. One such language, for example is French, which, at least on first glance, fails to fit easily within such a parametric approach.

(3)   a.   Tu   vas   voter pour qui?
            You will vote   for   whom

       b.   Pour qui   tu   vas   voter?
            For   whom you will vote

'Who are you going to vote for?'

French has a number of strategies for asking *wh*-questions, including, but not limited to the two exemplified above. These examples demonstrate that the French speaker may either leave the question word in-situ (3a) or move it to the front of the expression (3b). French speakers have been argued to be able to use each of these constructions in full information-seeking contexts, contrasting with a language like English, where the *wh*-in-situ strategy is largely restricted to echo contexts or so to called test questions, neither of which are considered information seeking. Given this apparent optionality in French, authors have proposed mixed accounts of interrogative marking, with multiple strategies available in a single language. In order to account for optional in-situ, either these mixed accounts must be embraced, or some attempt must be made to preserve the parametric account while allowing for the apparent presence of full information seeking *wh*-in-situ.

In this thesis, after reviewing a number of the approaches in the literature that have been proposed to solve the issue of optional *wh*-in-situ in French, we explore some of the consequences of a more radical approach, one in which in-situ questions in French are not considered as syntactically interrogative. On this approach, their question status must be accounted for purely in terms of the pragmatics of questions. Taking a cue from an explanation of biased polar declarative questions, we consider the role that the speaker and addressee's information states may play in the usage of *wh*-in-situ in French.

This thesis is organizaed as follows: In Section 2, we consider several syntactic approaches to optional *wh*-in-situ, before presenting a Bobaljik & Wurmbrand's approach (2014), in which in-situ questions can be considered syntactically declarative. In Section 3, we present the current treatments of the pragmatics of *wh*-in-situ, both in French and in other *wh*-in-situ optional languages. Following this, in Section 4, Gunlogson's commitment based approach to

English polar declarative questions is presented, and we discuss how this may be generalized to *wh*-in-situ questions. Sections 5 & 6 present the surveys that we ran, exploring both speaker and addressee information states. Finally, Section 7 presents a general discussion of this approach and potential work to be done in the future.

2   The Syntax of *Wh*-In-Situ

2.1   Is *Wh*-In-Situ Interrogative?

There have been several approaches that attempt to explain *wh*-in-situ questions as belonging to a special class of interrogatives in French. While they might be licensed in a different way from fronted questions, they share the same basic syntactic property, interrogativity. The challenge for these kinds of theories is in establishing how a single language can license *wh*-interrogatives in multiple ways. Further, they must be able to explain why *wh*-in-situ tends to be syntactically more restricted than fronted questions. Most notably, *wh*-in-situ in French and many other optional in-situ languages cannot occur in embedded contexts. In this section, I will consider several approaches that attempt to explain the presence of the in-situ option in French, before considering one of their common pitfalls, the embedding problem. That will set the stage for a discussion of Declarative Syntax Questions, suggesting that *wh*-in-situ in French may not be interrogative after all.

Cheng & Rooryck (2000) - An Intonation Licensing Account

Cheng & Rooryck (C&R) propose that French is largely a movement language, with in-situ questions being a special kind of interrogative. They assume that in most languages, there is an interrogative complementizer with strong [+Q] features that must get checked in some way. As a movement language, French can check this feature through the movement of the *wh*-phrase

to the specifier. As an optional in-situ language, French also has available another strategy, one that is similar to the strategy of in-situ languages. French can check the features of this complementizer by inserting a Q-morpheme, in the same way that Mandarin and Japanese employ *wh*-particles. What distinguishes French, then, is that its optional Q-morpheme is intonational.

C&R begin by observing that French *wh*-in-situ questions tend to be accompanied by an intonation with a sentence-final rise (4c), absent from fronted questions (4a, b). A similar rise also occurs in yes/no questions, both those accompanied by a question marker like 'est-ce que' and those not accompanied by a question marker (4d).

(4) a. Quel livre est-ce que Jean a acheté
      Which book EST-CE QUE Jean has bought
      'Which book did Jean buy?'

   b. Quel livre Jean a-t-il acheté
      Which book Jean has-he bought
      'Which book did Jean buy?'

   c. Jean a acheté quel livre (rising intonation)
      Jean has bought which book
      'Which book did Jean buy?

   d. Jean a acheté un livre (rising intonation)
      Jean has bought a book
      'Did Jean buy a book?'

Given this apparent similarity between yes/no questions and in-situ questions, Cheng & Rooryck propose that there is a Q-morpheme present in the SPEC of CP that checks a strong Q feature on C^0. This morpheme corresponds to the intonation featured on both of these types of questions. Across languages, the Q-morpheme can either be specified or underspecified, and when specified, it is either specified with a *wh*-feature or a yes/no-feature. These options are represented as hierarchically structured attribute-value pairs, such as [Q: +wh] for the wh-feature specified

morpheme, [Q: +y/n] for the yes/no-feature specified morpheme, and [Q:] for the underspecified question morpheme. What is special about the French intonation morpheme that licenses both yes/no questions and wh-in-situ is that it is an underspecified question morpheme. In that way, the same morpheme is able to license both of these interrogative types.

The authors assume that the underspecification of Q must be resolved at some point in the derivation, with the feature appropriate to the particular question, in order for the structure to converge. For yes/no questions, C&R argue that the underspecification is resolved with a "default operation", outputting a [y/n] value at LF. Thus, rising yes/no questions are able to be interpreted as yes/no.

What about the case of in-situ wh-questions? If nothing happens at LF, the question morpheme will remain underspecified and the structure will not converge. The "default operation" proposed for yes/no questions is clearly no good here, either. If nothing is done, and the structure is assigned the default-interpretation, [Q: +y/n], there aren't features that match the wh-word. The question morpheme needs to be specified with wh-features, and not yes/no-features. Cheng & Rooryck propose feature movement at LF as the solution. Movement of the wh-feature from the question word to C^0 sets the value of [Q:] to[Q: +wh]. In this way, the underspecified nature of the question morpheme appears to drive the movement of the wh-feature.

Cheng & Rooryck's account attempts to explain certain structural restrictions on the use of wh-in-situ in French - that it cannot be preceded by quantifiers, negation or modals (EX). Below are examples from their account, along with the judgements that they recorded. In these contexts, the only permitted interpretation is the echo interpretation.

(5)   a. Tous les étudiants ont   rencontré qui?
             All   the students have met   who
             'Who did all the students meet?'

b. Il n' a   pas rencontré qui?
   he NE has not met   who
   'Who hasn't he met?'

They claim that there is a weak island effect that intervenes, creating an inaccessible domain between the [+wh] feature and the in-situ wh-word, as would occur between an operator and an indefinite (Honcoop, 1998).

It is not clear, however, if these structural restrictions hold. There has been much disagreement in the literature about which of these structures, if any prevent the use of wh-in-situ in French. At least the restriction in negation is clearly refuted in Engdahl (Engdahl, 2006). When given an appropriate context, in-situ wh-words under negation no longer sound awkward. Given that this is the case, it is not clear that the same mechanism which licenses in-situ should also predict these restrictions. It is very possible that this fine-grained data regarding structural restrictions on in-situ varies signficantly across speakers and dialects, whereas the availability of in-situ in general does not.

In addition, it has been shown that wh-in-situ questions are not always accompanied by a sentence-final rising intonation (Déprez, Syrett, & Kawahara, 2013). The researchers recorded participants producing rising intonation yes/no questions, 'est-ce que' questions, declarative sentences and in-situ wh-questions. By comparing the prosodic curves for each of these conditions, the authors looked to see if they could empirically support the claims made by Cheng & Rooryck (2000). As expected, it was clearly observed that both 'est-ce que' yes/no questions and yes/no questions without est-ce que displayed a clear sentence final rise nearly 100% of the time, in contrast with declaratives which almost never did. Surprisingly, however, the in-situ wh-question condition was less consistent. While there was a sentence-final rise for in-situ wh-questions, they found that this occurred less often than in the yes-no questions, only about 73.3% of the time and also had a different intonation profile. This suggests that the

picture of intonation on wh-questions is more complicated than C&R propose.

Bošković (2000) - Late Merge and In-Situ

Rather than propose that French in-situ follows a strategy similar to that of in-situ languages like Japanese, Bošković proposes that French exploits the "late-insertion" of a complementizer with [+wh] features, thus prompting the movement of the wh-word at LF , while allowing the wh-expression to appear in-situ in the syntax (Bošković, 2000). Under this approach, after the syntactic derivation is complete, a complementizer with strong [+wh] features is inserted into the CP at LF. In order to prevent this derivation from crashing, the wh-word must then move at LF, immediately checking the strong feature on C.

   (6)   a. SS [$_{IP}$ tu as vu qui]

          b. LF [$_{CP}$ qui C [$_{IP}$ tu as vu]]

The predicted structure in the syntax is given in example (6a), while the structure at LF is given at (6b).

    Bošković 's proposal predicts very strict locality restrictions on the availability of French in-situ. He relies on the fact that late insertion must occur only at the root, namely after the entire syntactic derivation has been passed on to LF. Furthermore, Bošković argues that, because all covert must involve only pure feature movement, the sort of covert movement involved in French in-situ is head movement. Due to this, it is French in-situ is subject to much stricter locality restrictions than the overt movement of the wh-phrase to the SPEC of CP. He predicts, for example, that long-distance *wh*-in-situ should be excluded, which has been strongly contested (Starke, 2001). He also predicts, like Cheng & Rooryck, that it should be subject to weak-island constraints.

Richards (2010) - Towards A Deeper Explanation of Movement

The general parametric approach, as well as each of these proposals, leaves a deeper issue unresolved - what motivates movement? While the assumption that movement must occur in order to check an abstract feature is able to capture mechanistically what is empirically observed, it does not provide a deeper explanation of why movement in fact occurs in language. In an attempt to resolve this central issue and deepen our understanding of the fundamental processes of language, Richards (2010, 2016) proposes that wh-movement may occur in order to satisfy prosodic constraints on sentences.

Like other generative linguists, Richards starts out by assuming that the wh-phrase and the interrogative complementizer must bear a special relationship to one another. In order for this relationship to be borne out, Richards proposes that there must be as few prosodic boundaries as possible intervening between the wh-phrase and the complementizer head. Movement here then serves as a kind of last resort. If it is not possible for a language to remove the intervening prosodic boundaries in some other way, then movement must occur to achieve the required 'proximity' between the interrogative C and the wh-phrase that depends on it.

Richards (2010) begins by assuming that prosodic representations are constructed through the mapping of certain syntactic boundaries onto prosodic boundaries. This mapping is done by defining (1) what kinds of structures are relevant to the mapping and (2) how the prosodic boundaries are assigned given the relevant structure. One might, for example map every DP into a prosodic domain boundary, placing the boundary at the left edge of the DP, as in(7a) below.

(7)   a. $[_{TP} [_{DP}$ D NP $] [_{VP} [_{DP}$ D NP $]$ V$]]$
          .   (D NP . .   )(.   .   . V)

The level of phonological phrasing shown above is what is called, the "minor phrase," which is

the lowest level of phonological phrasing. It is the location of these minor phrase boundaries that is important for the analysis of wh-expressions.

We can now give a description of the special condition that single wh-questions must meet. In order to preserve the relationship between the wh-phrase and the interrogative C head, there must be as few intervening prosodic boundaries as possible. Specifically, there must be as few intervening Minor Phrase boundaries as possible. This is captured in the condition below:

(8)   Wh-Prosody Condition:

Given a wh-phrase x and a complementizer C where x takes scope, x and C must be separated by as few Minor Phrase boundaries as possible, for some level of Minor Phrasing.

Now, in order to satisfy the Wh-Prosody Condition given above, the speakers must in someway minimize the number of intervening prosodic boundaries. Furthermore, if possible, they should do so without resorting to movement. What other strategies are available then? Richards posits that there are ways for languages to remove intervening boundaries.

In Japanese *wh*-questions, it appears that minor phrase boundaries that intervene between the wh-phrase and the complementizer head can be removed. In Japanese *wh*-questions, the normal intonation of the sentence changes, and there is a drop in pitch between the *wh*-word and the question particle at the end of the sentence (Kubozono, 2006). This drop in pitch is not present in similar declarative structures. In order to explain this, Richards proposes that the rules creating Minor Phrases can be applied recursively, creating so-called larger Minor Phrases.

(9)   **Constructing Larger Minor Phrases**:

a.   For one end of the larger Minor Phrase, use a Minor Phrase boundary that was

introduced by a wh-phrase.

b. For the other end of the larger minor phase, use any existing Minor Phrase boundary.

This allows for the option between either of the phrasings given in(10a):

(10)   a. $[_{TP}$ $[_{DP}$ whP $]$ $[_{VP}$ $[_{DP}$ D NP $]$ V$]]$
.   (whP . .   )(.   .   . V)
. (whP . . . . . . V)

The stage has now been set to understand why some languages require wh-movement, and why French in particular does not have a requirement for movement. Parametrically, languages can either assign Minor Phrase boundaries to the left or to the right of the DP. In the examples above, the Minor Phrase boundaries are assigned to the left. If this is the case, and the complementizer occurs at the end of the sentence, as in a language like Japanese, then it is possible generate a Minor Phrasing where there are no intervening boundaries without resorting to movement. This predicts correctly that wh-movement is not required, and hence disfavored, in Japanese. Conversely a language that assigns boundaries to the left but has an initial complementizer would not be able to generate a Minor Phrasing without intervention. Thus, this sort of language would obligatorily prompt movement to satisfy the Wh-Prosody Condition. This is what we see in a language like Tagalog.

French, on the other hand, is perfectly opposite Japanese. It has an initial C and assigns its prosodic boundaries to the right (Richards, 2016), patterning like another language Richards has studied extensively, Chichewa. Given this, we would expect in-situ structures to be permissible, and this is of course what we see. While this appeal to deeper motivations for wh-movement is very elegant, it leaves a number of questions unanswered. In particular - how do you ever motivate wh-movement in French and why is this movement required for indirect questions? Although the approach suggested has many appealing features, here, as before, important

problems are left unsolved.

2.2 The Embedding Problem and Declarative Syntax Questions

The Embedding Problem

In French, like in many other languages that seems to optionally allow *wh*-in-situ, the *wh*-in-situ form of the question is not permitted in every syntactic context. In particular, as in a number of other so-called in-situ optional languages, in French movement is stringently required in embedded questions. It has been observed quite generally that languages featuring moved interrogatives vary in when and how frequently they allow *wh*-in-situ forms. Even English, for that matter, occasionally allows *wh*-in-situ outside of strict echo contexts, as in game show questions. None of these languages, however, allows wh-in-situ in indirect questions, as can be seen for French (11a,11b), and for English (12a, 12b) below:

(11)   a.   Jean a demandé de quoi tu parles.

      b.   *Jean a demandé tu parles de quoi.

(12)   a.   I asked Mary what you were talking about.

      b.   *I asked Mary you were talking about what.

    The requirement for movement in embedded contexts, however, does not hold in languages where interrogative movement does not occur, as in Japanese or Mandarin. In these languages, even in indirect questions the *wh*-expression still remains in-situ.

(13)   a.   Botong xiang-zhidao [Hufei mai-le   shenme]?
          Botong want-know   [Hufei buy-asp what]
          'Botong wants to know what Hufei bought'

In example (13a) in Mandarin above, the wh word stays in-situ even in an indirect question. Given this, it's fair to ask what is different about French in-situ questions that could explain

why they are prevented from occurring in these syntactic contexts.

Each of the above proposals struggles with the embedding problem. In order to attempt satisfy this restriction, Cheng & Rooryck propose that their intonational morpheme is a root morpheme only able to occur in the matrix CP. Bošković restricts the appearance of long-distance French in-situ by positing that French in-situ is an instance of covert head movement, which is subject to stricter locality restrictions than wh-movement.

These accounts, however are potentially too strict, responding too another claim in the literature stating that French *wh*-in-situ cannot occur in any embedded context, not just that of indirect questions. The data on this issue, however, are inconsistent. In general, while these stronger restrictions, like the island constraints, may hold for some speakers of some dialects of French, they do not hold across the board in either French of other optional in-situ languages like Brazilian Portuguese (Engdahl, 2006; Starke, 2001). Given that *wh*-in-situ is otherwise widely available across dialects, one unified account of wh-in-situ in French, not responding to these stronger restrictions is in order.

Bobaljik & Wurmbrand (2015) - Declarative Syntax Questions

Bobaljik & Wurmbrand (2015) offer a novel approach that proposes to remove interrogative syntax from the issue of *wh*-in-situ, allowing for *wh*-in-situ questions to be treated as syntactically declarative. They begin with the embedding problem, noting that if a language has wh-movement, then wh-movement is obligatory in indirect questions. This can be accounted for if these embedding contexts in which we find indirect questions require the selection of a CP that is syntactically interrogative, and if in-situ questions do not have interrogative syntax. In this way, these embedded questions would fail to meet the selectional restrictions of the matrix verb. If this idea holds across languages, it would allow the explanation for optional in-situ to

be vastly simplified (Bobaljik & Wurmbrand, 2015).

One can differentiate between languages that we might call 'true in-situ' languages from those that exhibit apparent optionality of in-situ. True in-situ languages are those that have an interrogative complementizer C_{wh} that licenses wh-in-situ. However, this licensing occurs (covert movement, feature movement, scope) this sort of operator only exists in true in-situ languages like Mandarin or Japanese. This allows for the generation of indirect in-situ questions as in the example in the previous section (13a), where the indirect question does not require movement.

Some accounts of optional in-situ posit the existence of another sort of interrogative complementizer that exists in these in-situ optional languages. This complementizer would behave like the complementizer in true in-situ languages, licensing in-situ without overt movement. Cheng & Rooryck's proposal, for example, does precisely this, treating in-situ in French like the instantiation of those constructions familiar from Chinese. This forces us, however, to posit the existence of several different kinds of interrogative complementizers, sometimes co-occurring in the same language and adding spurious complication to the system. Furthermore, as was noted in the previous section, these approaches struggle to explain why this strategy is not available in embedded contexts. Their account amounts to little more than a stipulation.

Bobaljik and Wurmbrand's approach holds that optional in-situ is not actually like the in-situ found in true in-situ languages like Mandarin at all. In so-called optional in-situ languages, the in-situ structures are actually syntactically declarative, and the question interpretation must then be licensed pragmatically, which raises a different set of issuses. This provides a straightforward solution to the embedding problem, however. In so-called optional in-situ languages, because cases of in-situ are not marked syntactically as interrogative, they are not

able to occur in syntactic contexts that require an interrogative. For verbs whose selectional restrictions require an interrogative complement then,declarative complements are not allowed, disallowing structures like (11a) above. On the other hand, in a true in-situ language like Mandarin, interrogative syntax is expressed by using a question morpheme, and not movement of the wh-word. Thus embedded questions without movement are still syntactically interrogative and hence able to be embedded under interrogative selecting predicates.

Given that this approach neatly divides moved and in-situ questions into questions with interrogative syntax and questions with declarative syntax, it remains to be seen how this impacts our predictions about the usage of wh-in-situ.

3 The Pragmatics of Wh-In-Situ

In treating wh-in-situ expressions as questions with declarative syntax, the remaining facts about in-situ questions and their usage are left to the pragmatics for explanation. There has been much debate in the literature about whether or not in-situ and moved questions are used in exactly the same way. It does not appear that the two question forms are in free variation, with a general preference for the moved form apparent in corpus data. Furthermore, there is increasing evidence that different corpora often behave very differently with respect to the use of in-situ. There have been several accounts of the usage of wh-in-situ questions, highlighting different factors meant to explain their distribution. Accounts can broadly be classed as presupposition based, focus based or addressee based. Each of these classes of accounts focuses on the presence of some foregrounded information salient to the participants in the conversation. They struggle conceptually, however, failing to provide provide a deeper explanation of the usage of wh-in-situ questions. As an alternative to these accounts, we shift the focus from presuppositions to bias. There has been extensive research on biased polar

questions in English, sentences like "It's raining out?", that have been argued to manifest the combination of declarative syntax with questioning force and have been shown to carry a positive bias. Because of their similarities with wh-in-situ questions, they suggest that the pragmatic constraints argues to restrict polar declarative questions may also restrict the in-situ questions under investigation here.

3.1 Presupposition-Based Accounts

Chang 1997 - Strong Presuppositions

French in-situ questions may carry with them more content, and specifically more not-at-issue content, than fronted questions do (Chang 1997, Cheng & Rooryck 2000, Pires & Taylor 2007). One important early assumption made about optional wh-in-situ in French has been that it conveys the "strong presupposition" of some element of the content of the question and must thus be licensed by a relevant sort of discourse context (Chang, 1997). This idea, adapted from a distinction made by between strong and weak presuppositions in French yes/no and wh-questions is not entirely clear (Coveney, 1988), however. Coveney states that for the potential moved alternatives to wh-in-situ, available in the same contexts as the in-situ question, the speaker appears to "be presupposing the given information less strongly." This notion of 'strong presupposition' proves to be hard to define precisely, and even harder to demonstrate empirically. Chang, in her thesis, begins by noting that French in-situ questions carry with them a presupposition not entirely dissimilar to that of a focused question, claiming that in (14) below, a negative response, such as rien is strange in a way that it is not for a moved question, as in (15).

(14) Q: Marie a   acheté quoi?
             Marie has bought what
             'What did Marie buy?'

A: #Rien
'Nothing'

(15) Q: Que Marie a-t-elle acheté?
What Marie has-she bought

'What did Marie buy?'

A: Rien
'Nothing'

This reported bias against a negative response may connect wh-in-questions to biased yes/no questions, as Cheng and Rooryck (2000) point out in their own account. They posit a uniform, underspecified Q-morpheme realized in the intonation of both yes/no questions and wh-in-situ question. They observe that yes/no declarative questions in English, which are marked only by rising intonation, express an apparent bias.

(16)   a. Are you cooking tonight?

   b. You are cooking tonight?

In (16b) above, for example, the speaker seems to expect an affirmative response. They appear to (strongly) presuppose that the addressee is, in fact cooking tonight. Citing Chang, the authors observe a similar preference against a negative answer to a wh-in-situ question. Without elaborating more deeply on how this may be possible, they suggest that this similarity is due to the way each of these questions are marked, through the use of the intonation morpheme. While this account merely stipulates the relationship between wh-in-situ and yes/no questions, the link between these question forms will remain an important one.

Important to understanding Chang's brief account of the pragmatics of French in-situ is the distinction between a strongly presupposed event (context) and a strongly presupposed answer set. Chang highlights this distinction, and with the aid of highly anecdotal evidence, concludes that it is the presupposed event that is in fact operative in the use of *wh*-in-situ.

(17) A: Je téléphonerai   à Marie avant de partir.
          I   will-telephone A Marie before DE leaving

          "I will call Marie before leaving."

      B: Vous partez quand?
          you   leave   when

          "When are you leaving?"

(18) A: C'est l'anniversaire de Paul lundi   prochain.
          It-is the-birthday   of Paul Monday next

          "It is Paul's birthday next Monday."

      B: Tu achèteras quoi pour lui?
          you buy-FUT what for   him

          "What will you buy for him?"

As can be seen in the examples above, for each of the questions, they are in reference to an event that is already suggested in the preceding context. In (17) this is obvious – the speaker mentions that they are going to leave, and then their interlocutor asks them an in-situ question clarifying when. In (18), it requires the interlocutor to make use of some world knowledge, that one usually buys gifts for birthdays, but is still an event that is 'presupposed' in the context. Specifically, these presuppositions take the form of existential statements, similar to the presuppositions of clefted statements, and wh-questions then seek further elaboration on top of that. In (18) it's assumed that the interlocutor will buy something for Paul, and thus is able to ask the question for specification.

Pires & Taylor (2007) - A Common Ground Requirement

Alternative presuppositional accounts focus on the presupposition of other elements relevant to the question, such as the answer set. Pires & Taylor (P+T) posit the existence of an interrogative form in English and Brazilian Portuguese marked by the presence of a so-called Common Ground complementizer, which carries with it the requirement that the set of possible answers to the

question are already part of the Common Ground (CG) (Pires & Taylor, 2007).

It is an oversimplification that *wh*-in-situ questions are only possible in echo contexts in English. P+T highlight new data demonstrating that in-situ is permissible in English in many of the same contexts as in Brazilian Portuguese, an in-situ optional language like French. They present a number of interesting cases, including questions that ask for clarification or specification (19) and questions that carry with them the expectation of an answer, such as in legal questioning (20). While this in-situ is less robustly available in English than in Brazilian Portuguese, it is nevertheless an option for speakers.

(19)   A: I made deserts.

       B: You made what kind of deserts?

(20)   A: I was driving along College Ave.

       B: And you were driving in which direction?

What appears to unite all of the above cases is their relationship to the information in the Common Ground. The Common Ground is defined on the basis of Stalnaker (1978), as what is seen as "common knowledge" by both the speaker and the hearer. This includes both the information in the preceding discourse as well as any shared assumptions between the speakers about the wider world. One way of defining presuppositions then, is as the information that the speaker assumes is already present in the common ground.

As with Chang's account, each of Pires & Taylor's examples describes a special relationship between the in-situ question and the preceding discourse. For Pires & Taylor, however, this relationship is predicated on the answers to these questions, rather than an existential presupposition in the preceding context. They assume that what unites these kinds of questions is that their set of possible answers are already in the common ground.

Given this distributional data, the authors are then able to propose the presence of a common ground complementizer that does not trigger wh-movement. This complementizer carries with it the Common Ground Requirement, that the answers to the question already be in the common ground. This essentially allows them to stipulate the relationship between these questions and the Common Ground, but it doesn't allow for a very deep level of explanation.

The Limitations of Presuppositional Accounts

Each of these presupposition-based accounts suffers from a number of conceptual and empirical issues. To begin with, the data that Chang cites in support of the "strong presupposition" of French in-situ has not gone uncontested.

The data supporting the "strong presupposition" of French in-situ questions has been contested in the literature. Going against Chang, Mathieu (2004) argues that, at least in his own dialect of French and in that of all of the informants to whom he spoke, it is perfectly acceptable to answer an in-situ question with a negative answer. That is, in the example (14) above, the response *rien* would not be judged as strange or infelicitous. If the *wh*-in-situ question did carry with it a presupposition, or a bias towards an affirmative response, we might expect something else. Using an infelicitous negative response as a test for bias (not presupposition) seems to have its limits, however, as will be discussed in the section on bias.

The "strong presupposition" claim has also undergone attacks from a more conceptual point of view. Mathieu (2004) brings this up as well, noting that much of what Chang (1997) and others say about French wh-in-situ and presuppositions seems to contradict ideas put forth in the literature on questions. It has been claimed that questions, in general carry with them certain presuppositions. Belnap and Steel (1976) define a question as presupposing a particular statement if and only if the statement's truth is necessary for there a being a true

answer to the question. Thus, whenever you provide a response that does not constitute a true answer to the question, then you are denying the presupposition of the question. In these cases, it is claimed that you are giving a *corrective* answer to the question, rather than a *direct* answer to the question. While much of what constitutes a presupposition to a question is unclear, this information should at least give one pause when approaching "strong presupposition" accounts of *wh*-in-situ

Presupposition accounts based on the answer set lead to problems as well. Pires & Taylor's Common Ground account leads to a strange, although perhaps not incorrect conclusion; When speakers use wh-in-situ questions in English and Brazilian Portuguese, they are asking a question that they already know the answer to. Their account, like Chang's, is presuppositional. In contrast to hers, however, it is focused on the answer to the question, rather than on the context/event. They claim that wh-in-situ in English and Portuguese requires the speaker's assumption that the answer to the question is already a part of the Common Ground. Opponents of this view have noted that this is a somewhat strange view to have of questions. Why would a speaker ask a question if the answer was already available to them and to their interlocutor? For English with its limited availability of in-situ, this does not seem so terrible. For Brazilian Portuguese or French, however, where speakers use wh-in-situ much more often, this may present a problem. At the very least, it makes it appear that wh-in-situ is not really an information seeking question.

3.2 Focus-Based Accounts

I will touch briefly on focus-based accounts, which appear to complement the presuppositional accounts. Hamlaoui (2008) proposes that wh-in-situ questions are an instance of narrow focus, whereas moved questions are an instance of broad focus. What separates these questions is

whether it is only the question word that is focused (narrow), or a larger segment containing the question word is in the focus (broad).

The implications for the pragmatics of wh-in-situ are not entirely clear here. Hamlaoui is concerned primarily with giving a phonological account of focus, and does not concern herself with the details of its usage. It is interesting, however, that focus tends to highlight the new information in a proposition. Parallel to this, presuppositions are concerned with backgrounded or already shared information. If the wh-phrase is receiving narrow focus, this suggests that the rest of the phrase is not new information. Contrast this with Chang's presuppositional account. Here, the contents of the sentence (except the wh-phrase) are claimed to be presupposed. There is a clear parallelism here - where Hamlaoui's account focuses on the wh-expression pertaining to the only new information in the sentences, Chang's approach focuses on the rest of the information in the sentence as being already shared between the interlocutors.

3.3 Addressee Oriented Accounts

In addition to the information structural accounts given above, it has been proposed that French speakers prefer the use of the in-situ form when they believe that their question is highly answerable (Myers 2007, Engdahl 2006). This is to say that, speakers believe that the answer to the question they raise is contained within the set of their addressee's beliefs, but not necessarily in the common ground. This may initially appear similar to Pires and Taylor's proposal, but it is not. This account is totally agnostic as to whether or not the speaker has access to the answer to the question. It is concerned only with the assumptions about the addressee's information.

It is the consideration of the just the addressee's information that, in general sets this account apart from previous ones. Rather than being concerned with all of the information

shared between the discourse participants, it makes use of a very specific part of the common ground - the mutually accepted beliefs about the addressee's information state. This sort of approach manages to avoid the problems faced by the common ground approach. These questions are clearly still information seeking in an important way - the speaker here does not have access to the answer, only to the knowledge that their addressee can answer the question.

Bias - The Missing Link

These proposals have, in general, been circling around the information states of the interlocutors as a potential factor affecting the use of in-situ; however, they have struggled to unite on the empirical facts, as well as on the nature of the connection between information structure and question form. Presupposition based accounts of wh-in-situ differ across languages, with some authors highlighting the event presupposition as the relevant factor (Chang 1997) and others the presupposition of the answer set (Pires & Taylor 2007). Within French, authors seem to disagree on the core data relevant to the presupposition based accounts. They do seem, however, to capture a basic intuition that *wh*-in-situ questions carry with them some information already shared between the interlocutors.

Of additional concern is the fact that these presuppositional accounts fail to give a deep explanation of why in-situ questions should have this property. One promising way of attempting to explain these connections more deeply is through the appeal to focus, linking the behavior of wh-in-situ questions to syntactically independent information-packaging properties of a given language. At this time, however, little conclusive has been said on this point. Another approach, which we consider here, involves the presence of bias, rather than presupposition per se. *Wh*-in-situ may carry with it a bias towards a particular response or a particular set of responses. The real appeal of this approach is that it allows for the distribution of in-situ

and moved questions to be considered in terms of the more general natures of their respective syntactic forms. It provides an opportunity to consider the implications of the proposal that in-situ questions are syntactically declarative.

4   Declarative Questions and Bias

While no work has been done seeking to understand how declarative syntax might impart a bias to in-situ questions in French, there has been extensive work on a particular kind of biased delarative question in English, the polar declarative question (PDQ). This is an utterance with declarative syntax, often accompanied by a rising intonation, which acts like a polar question with a bias towards an affirmative response (Gunlogson, 2004). These are questions like, "You're going to the store?" PDQs in English are subject to a number of contextual restrictions that do not apply to utterances with full-interrogative form. They are awkward out of the blue, or in situations that require impartiality. Importantly, they are also strange in situations in which the speaker is wholly ignorant of the propositional content of the utterance. For example, one wouldn't ask someone the question, "It's raining out?" unless they had some reason to believe that it was.

In her book, Gunglogson attempts to explain this distribution from the nature of the bias that these expressions convey. She explicitly breaks apart the use of declarative/interrogative syntactic form and the questioning force of an utterance. On her account, all declaratives carry with them the commitment to a proposition. Such a commitment is absent from items which are syntactically interrogative. By considering how this commitment-based approach might be generalized or extended to wh-questions, we can generate and test some predictions about *iwh*-in-situ made by this particular approach to the pragmatic function of declarative syntax, if, as proposed by Bobaljik, these do indeed manifest declarative syntax.

Polar Declarative Questions appear to express a bias towards an affirmative response. If a speaker asks the question in (21b), then it is expected that their addressee will respond that it is, in fact, raining outside. For this reason, Gunlogson notes that this form of question is odd in situations requiring impartiality, like court hearings. Because these questions carry with them the expectation for a particular response, they are used in cases where the speaker must remain neutral.

(21)   a. It's raining out.

    b. It's raining out?

    c. Is it raining out?

Declarative Questions are also strange when the speaker is wholly ignorant about the contents of the question. If our speaker were in a windowless room, and the addressee had just come in from outside, it would be strange to ask them (21b). It would be much better to ask them (21c). Notice that in each of these cases, not just the declarative questions, but also the falling declaratives are strange. Just as a speaker would never assert (21a) when they didn't have the grounds to do so, a speaker would never use the declarative question.

Wh-in-situ may also express something akin to the bias we see demonstrated above. Cheng & Rooryck (2000) suggest in their work that there is a similarity between the bias in yes/no questions and the preference against a negative response to an in-situ question, thus motivating the use of a shared intonational morpheme. Pires & Taylor suggest a number of cases that seem to suggest bias towards a particular answer. In particular, their "expect-q's" seem to carry with them the expectation of a particular class of answers. See below (22), where the speaker is a mother who is questioning her child the morning after they snuck out to go to a party. She knows that they snuck out, and in asking this question indicates she is expecting a particular response.

(22)   a. Tu es rentré   à quelle heure hier   soir?
            You are returned at what hour yesterday evening

            'When did you return yesterday evening?'

(23)   a. Où   etiez-vous samedi   soir   à 3h   de l'aprés-midi?
            Where were-you Saturday evening a three DE the-afternoon

            'Where were you saturday evening at three in the afternoon?'

As with the PDQs above, French in-situ questions are strange if you are attempting to convey impartiality. In (23) above, the speaker is not clearly expecting a particular response.

Commitment to a proposition

Important to Gunlogson's account is the fact that declarative syntax carries with it a uniform pragmatic function. In the above examples, the declarative statement and question share certain restrictions on their usage. Gunlogson (2004) suggests that what unites all sentences with declarative form is that they express commitment. That is each both declarative questions and statements require either the speaker or the addressee to commit to the content of the proposition, with commitments being understood as those propositions that are *publicly acknowledged* as the beliefs of the speaker or hearer.

This commitment-style model of discourse is a more articulated version of the Common Ground (Stalnaker, 1978). Building on Stalnaker's assumption that the context is the set of worlds for which the mutually believed or acknowledged propositions of the interlocutors are true, Gunlogson adds to this a record keeping element. This tracks the propositions to which each of the participants in a discourse are *commited*. She defines the common ground specifically as the set of propositions mutually believed (or acknowledged) by all of the participants in the discourse. She further defines the discourse commitments of the participants as follows:

Let $CG_{A,B}$ be the Common Ground of a discourse with participants A and B.

a. DC_A of $\text{CG}_{\{A,B\}}$ = {p: 'A believes p' $\in \text{CG}_{\{A,B\}}$}

b. DC_B of $\text{CG}_{\{A,B\}}$ = {p: 'B believes p' $\in \text{CG}_{\{A,B\}}$}

These are essentially the sets of propositions such that it is publicly acknowledged by the participants in a discourse that a speaker believes that proposition.

The process of commitment, then, is simply the process of updating a speaker's commitment set with a new proposition, further restricting the set of worlds that are true for that speaker. It is declaratives, and just declaratives that express commitment. In the examples above, both (21b) and (21a) carry with them the expectation that it is raining. This carries with it the commitment that it is raining, updating the context by committing the speaker or the addressee to a proposition.

What separates declarative statements from declarative questions is where the source of the commitment is expected to lie. Gunlogson links the role of rising or falling intonation to determining where context change occurs, on the speaker's commitment set or on the addressee's. In the case of declarative questions, the speaker puts forward a proposition to which they expect the addressee will commit. Rising intonation signals that the update should occur on the addressee's commitment set, and falling intonation that an update should occur on the speaker's. When combined with declarative form, the behavior of declarative questions and statements is clear. Rising declaratives, or declarative questions, update the addressee's commitment set, whereas falling declaratives update the speakers.

In order for this to work, we must assume that both questions and statements share some core propositional content. In a move that may diverge from their treatment elsewhere in the semantics literature, Gunlogson assumes that both polar interrogatives, rising declaratives and falling declaratives have the same basic meaning. What differentiates each of them is how that meaning is applied to the context. With declaratives, that takes the form of a commitment

set update, and with interrogatives that takes some other form - perhaps the partitioning of the context set.

Based on this picture of the discourse, it is expected that speakers are limited to using these different utterances under distinct conditions. In particular, a speaker would be unlikely to use the declarative form committing themselves or their addressee to a proposition unless they had good reason to do so, such as enough information to justify commitment. This is the reason that a speaker would be unlikely to use the statement (21b) above in a windowless room. This is bad regardless of the addressee's quantity of information, but it is especially bad when the addressee has just come from outside and is in a much better position to know what the weather is.

Defining the Grounds for Commitment - Authority and Information

Let us attempt to clarify when exactly a speaker is justified in proposing a commitment, and thus in using declarative syntax. One key element at play is authority. This essentially defines the grounds on which someone is able to serve as a *source* for a commitment. Gunlogson states, "By hypothesis, the interrogative utterance has the additional effect of implying that Harry can answer the question" (2008). In the use of an interrogative, the addressee is implicitly authoritative. Less obviously, the speaker does not have any authority at all in this situation. While the speaker's use of an interrogative implies that the addressee can serve as a source for the answer, no further indication is given as to the kind of commitment that the addressee will make. That is, by asking a question like, "Is it raining?" the speaker neither commits the addressee to the affirmative or the negation of the proposition (rain). The speaker merely assumes that, if either of the the speaker or the addressee can answer the question, it is the addressee.

Declaratives behave differently with respect to authority. For a declarative, the requirement for authority is on the part of the speaker. The speaker must have at least enough authority to make the claim that they do. This is because, commitments change the context, and correspondingly cannot be made without reason. Note that I have not said anything about whether or not the speaker is more authoritative than the addressee. This question appears to correspond more to the questioning force. When a speaker is authoritative enough to make a commitment, but not more authoritative than their interlocutor is precisely when we should see the use of declarative questions.

Authority can be understood intuitively in terms of the differing levels of information access of the interlocutors. This makes it clear why declaratives, but not interrogatives, require the speaker to have a certain amount of authority. A commitment requires information or backing in order to be made in a way that respects the rules of the conversation. It's in bad form to commit yourself or your interlocutor to something when you don't have the grounds to do so, namely when you don't have enough information to do so.

Given this, it is possible to make predictions about how and when the authority, and less directly the information that the interlocutors have access to will impact the choice of syntactic form and intonation. When the addressee clearly has access to information and the speaker does not, it is expected that the speaker will use an interrogative. When the speaker has access to at least some information, but the addressee is still the authority, it becomes possible that the speaker will use the declarative form, committing their addressee to some proposition. In the case where the speaker is authoritative, implying full access to information, or at least better access than their interlocutor, they will use the declarative.

4.1 Generalizing to *Wh*-Questions

It is not immediately apparent how the theory that Gunlogson proposes could generalize to *wh*-questions. One of the clearest obstacles for this is the peculiar treatment of the semantics of questions. For polar questions, Gunlogson was able to treat each form she discussed (interrogatives, rising declaratives, falling declaratives) as containing the same propositional core. While this is not uncontroversial, it is at least easy to see how this would work. Each of the examples in (21) above would contain the same basic proposition, and they would vary in how exactly they update the context. For wh-questions, however, it's less clear how the relevant propositional content could be defined, and consequently how it could relate to this process of commitment.

Depending on how one understands the semantics of questions, there are a number of ways that one might think about the propositional content of a wh-question. One approach that stands out as plausible would be to consider the wh-word as essentially an existentially quantified NP or an indefinite variable. There are numerous language in which *wh*-words and indefinites are related (Haspelmath, 2001). Such a treatment of wh-phrases is not If the meaning of the utterance is considered in absence of the interrogative marker, we are left with a proposition containing an indefinite expression. 'Who went to the store?' is stripped to 'someone went to the store.' This should appear very similar to the existential presupposition theorized to be conveyed by in-situ questions.

A more complete way of thinking about the meanings of questions, and in particular full interrogatives, is as conveying a set of alternatives - the possible answers to the question. This meaning then prompts the addressee to pick an answer to the question. On some analyses of interrogatives, it is the interrogative marker that contributes this 'set of alternatives' meaning to

the question (Karttunen, 1977). It would be nice if in-situ questions could simply be considered as lacking the interrogative marker, and thus not contributing the same meaning as moved questions. This is clearly not the case, however. When a speaker uses an in-situ question, she seems to be asking for the same information that she would be asking for in a moved question.

This requirement to specify a particular answer may not come from the interrogative syntax, however. While these may not be perfectly parallel to French in-situ questions, consider briefly an English declarative question like (24), asked in a context where the speaker notices his or her roommate coming back from the local store with a plastic bag.

(24)   (Q): You bought something at the store?

       (A1): #Yes,

       (A2): Yes, some asparagus.

While a addressee could simply respond with just "yes" such a response would not generally be considered acceptable by the speaker. These questions tend to be answered in a more specific way, as in (24). A simple "yes" answer is felt to be incomplete. It is clear that these behave somewhat differently from in-situ questions in French, in particular because they also require the inclusion of a "yes" or a "no," in the answer, which is not felicitous as a response to an in-situ question in French. Despite this difference, it is clear that expressions may convey a complete proposition, while at the same time continuing to seek information. We speculate here that French in-situ questions may be doing something similar, conveying a commitment to a proposition while at the same time requesting more information on top of this. If so, this could provide the beginning of an answer for what it could mean for French in-situ questions to have declarative syntax, while still being information seeking questions.

4.2 Motivating the Current Study

The authority of the interlocutors appears to play an important role in determining whether the speaker will choose to use a question with declarative syntax or a question with interrogative syntax. We can understand authority in terms of access to information. On the speaker side, it appears that, if the speaker has enough information relevant to the question at hand to express a commitment, then they are able to use the declarative form. On the addressee side, it appears that when, relative to the speaker, the addressee has much more information, then the speaker is likelier to use the interrogative form, recognizing their addressee as the authority. This all appears to be the case with English PDQs. Given the thesis that French in-situ questions have declarative form, we aim to explore the roles of each of the speaker and that addressee's information states on the use of *wh*-in-situ questions in French.

On the addressee side, the information assumed to belong to the addressee is assumed to play a role, with the moved form being used more often when the addressee has far more information than that speaker. On some previous accounts of wh-in-situ, it has been claimed that highly answerable questions are more likely to be in-situ (Myers, 2007). One form of highly answerable question is that where the answer is assumed or known to be in the addressee's belief set, conveying that the addressee is some sort of expert. It appears, in contrast, that a commitment approach makes the opposite prediction. Speakers make use the interrogative form to signal that their addressee is far more authoritative than they are, or in other words, when the addressee is felt to be an expert. With that in mind, we asked the following question: To what extent does addressee expertise trigger the use of the fronted form of a wh-question? We conducted a survey manipulating addressee expertise in order to answer this question, predicting that greater expertise would trigger increased use of the moved form of the question.

On the other side of this, the speaker's information is expected to play a role in the choice of question form as well. On Gunlogson's approach, the speaker is not predicted to be able use the declarative form unless they have at least some information pertaining to the question at hand. To see whether or not this is a factor in the use of *wh*-in-situ questions in French, we conducted a second survey manipulating the speaker's access to information, predicting that greater access to information would trigger the use of the in-situ form.

5   Experiment 1 - Expertise of the Addressee

This section describes a survey that we ran exploring the role interlocutor's information state in determining when to use *wh*-in-situ. We sought to understand how greater informational authority on the part of the addressee influences the choice between the in-situ or fronted form of a question. This is interesting because, in part, it appears to pit the approach pursued in this paper against other approaches taken in the literature. When treating wh-questions as having declarative syntax, the expectation is that increasing the addressee's information and authority should make it more likely that the speaker chooses to use the interrogative (or moved) question form. Myers (2007) assumes, however, that in-situ questions are preferred in more highly answerable contexts, making it more likely that, when the addressee possesses more information relevant to the question, the speaker will choose the in-situ form.

5.1   Method

Stimuli

This survey consisted of a forced-choice task, in which participants were asked to choose between the use of the in-situ or moved form of a question. Our participants were presented with items consisting of a two line context, and then a pair of questions, one in the in-situ form and one

in the moved form, with randomized presentation order. In each survey, there were 18 target items, split into two conditions, an expert condition and a non-expert condition. In addition to the target items, there were 18 filler items. These involved either the choice between a yes-no question marked by 'est-ce que' and one without'est-ce que', or the choice between a question with quantifier stranding or one without. These were included primarily to pull attention from the focus of the study on wh-questions, and to break up items with similar scenarios (All of the target items are included in Appendix A, along with examples of the practice items in Appendix B).

Each of the target items included a pair of *wh*-questions, identical except for the presence of overt wh-movement. The questions were formed using one of three question words: 'quoi' (what), 'où' (where), or 'combien' (how much). There were three items with each question word in each condition, for a total of 18 target items.

Preceding each item was a context, composed of a description of a scene (line 1) and the initiation of a dialogue (line 2). The participants were asked to place themselves in the shoes of the speaker. Using the context, they were asked to read the line of dialogue and finish it with either the moved or the in-situ question form. Each line of dialogue began with either the phrase, 'comme' (since) or 'vu que' (seeing as), and ended with either 'dis-moi' (tell me) or 'au fait' (in fact) - this was done in order to ensure that participants understood this line to be connected with the following question. There was variation in which phrases were chosen in order to ensure that the dialogue sounded more naturalistic. As much as possible, these were balanced across conditions and individual question words.

There were two conditions in this study - (1) expert addressee and (2) non-expert addressee. These conditions were created by manipulating the context to present the addressee as informed or agnostic with respect to the answer of the question being asked. A pair of example contexts

are provided below. In the first, the expert condition, the speaker acknowledges directly the information that the addressee is believed to possess. In the second, the neutral condition, the speaker brings up a topic relevant to the question at hand, but without specifying their expectations about the addressee's informedness. The amount of information that the speaker had access to was kept constant in each of these conditions.

A set of example contexts and experimental items

Expert

> **Context**: Un fils à sa mère qui rentre du marché :
>
> 'A son, to his mother who is returning from the store'
>
> **Dialogue**: Vu que tu as fait les courses pour le dîner, dis-moi...
>
> 'Since you went shopping for dinner, tell me...'

Non-expert

> **Context**: Un fils à son père qui rentre du boulot :
>
> 'A son, to his father who is returning from work'
>
> **Dialogue**: Vu que j'ai super faim, dis-moi...
>
> 'Since I am super hungry, tell me...'

Experimental Items

> **In-Situ** On va manger quoi ce soir?
>
> 'We are going to eat what this evening?'
>
> **Fronted** Qu'est-ce qu'on va manger ce soir?
>
> 'What are we going to eat this evening?'

The experimental items were pseudo-randomized in blocks of four, alternating fillers and target items, in order to ensure an even spacing of target items and fillers. Each block was

composed of one target item of each condition, and two fillers. Within each block, the target and filler items could occur in any order, so long as they alternated target and filler.

In addition to the target and filler items, the survey included two practice items with feedback to help the participants get accustomed to the experimental design. The practice items were also used as an indicator of native-level French. The first practice item involved a choice between a well-formed and an ungrammatical statement. If participants failed this initial question, then their results were excluded from the study. The second practice question was designed to encourage participants to think about using an informal register. They were asked to select between a very formal and a very informal statement (The practice items can be found in the appendices).

The survey was created with special attention paid to keeping as much an informal register as possible (this was difficult given the written form of the survey). The scenarios were all constructed between interlocutors with familiar relationships. The familiar second person pronoun 'tu' was used consistently in the dialogues, and the negative clitic 'ne' was deleted. This was done to encourage speakers to invoke a more naturalistic syle of speech. Because this was a text-based experiment, and wh-in-situ is taught as informal and incorrect in the written form, we wanted to encourage participants to focus on how they would speak, as opposed to what they were taught to be "correct."

The survey was constructed and hosted using PCIbex, an online experiment building platform, designed primarily for hosting linguistics experiments. The platform has a number of capabilities that lend themselves to the building of linguistic surveys. The platform utilizes HTML, CSS, and JavaScript. The experiment scripts that we used are all available on Github. (https://github.com/i-loder-matthew/wh-in-situ).

Participants

Participants were recruited through Prolific, an online survey recruitment platform. 53 native French speakers (30 M , 24 F) participated, and all were compensated $1.35 for their time. The speakers were from all over the French speaking world, with 28 from France, 16 from Canada, 2 from Morocco, 2 from Belgium and 6 from other countries. There was no correlation found between performance and country of origin, age or gender.

Analysis and Predictions

This survey compared the behavior of participants in contexts with an expert addressee to their behavior in contexts with a non-expert addressee. Our prediction was that speakers would select the fronted form more often in the expert condition than they did in the non-expert condition. We expected to see a much higher percentage of in-situ responses in the non-expert condition than in the expert condition. This is linked to our understanding of informational authority and its role in determining the appropriate syntactic form to use. In particular, we expect that speakers should prefer the interrogative form when their addressee is much more authoritative.

5.2 Results

There was not, in general, any significant difference in the results between the two conditions in this study. This survey considered the role of the addressee's perceived access to information on the preference for wh-in-situ in French. There were two conditions, (1) expert addressee and (2) non-expert addressee. Our hypothesis was that speakers would select the wh-in-situ form more often in the contexts with a non-expert addressee. While there is a slight positive trend in this direction, the results of each condition appear fairly similar. The in-situ question form
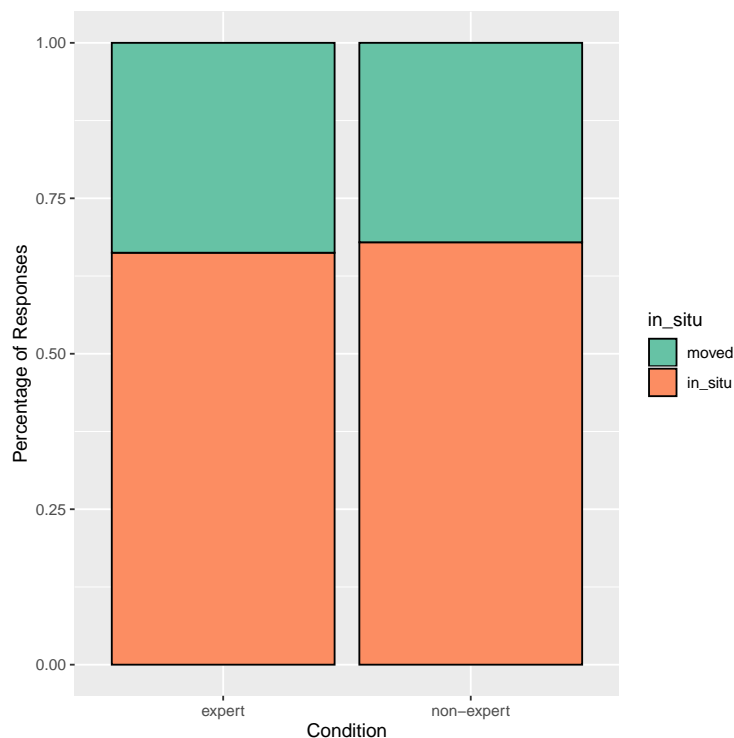
Figure 1: Use of Wh-In-Situ in Expert and Non-Expert Conditions

was selected 66.2% of the time in the expert condition, and 67.9% of the time in the non-expert

condition (Fig. 1). In order to test for statistical significance, I ran a logistic regression with

experimental condition (expert vs. non-expert) as the independent variable and question form

as the dependent variable (moved or in-situ) As might be expected from the overall frequency

of in-situ in each condition, there was no significant effect of expertise on the use of in-situ.

Behavior of Different Question Words

Each of the wh-words featured in this survey behaved very differently (Fig. 2). Overall, speakers

used 'combien' in-situ 64.5% of the time, 'où' in-situ 83.0% of the time and 'quoi' in-situ only

53.8% of the time. Interestingly, while both 'combien' and 'où' appeared to behave similarly with

respect to the target condition, expertise, 'quoi' did not. There is a clear qualitative difference

between the 'expert' and 'non-expert' conditions for the 'quoi' questions, with the in-situ form

being used 50.3% of the time in the expert condition, and 57.2% of the time in the non-expert condition. I ran a logistic regression and found that this difference was not significant either.
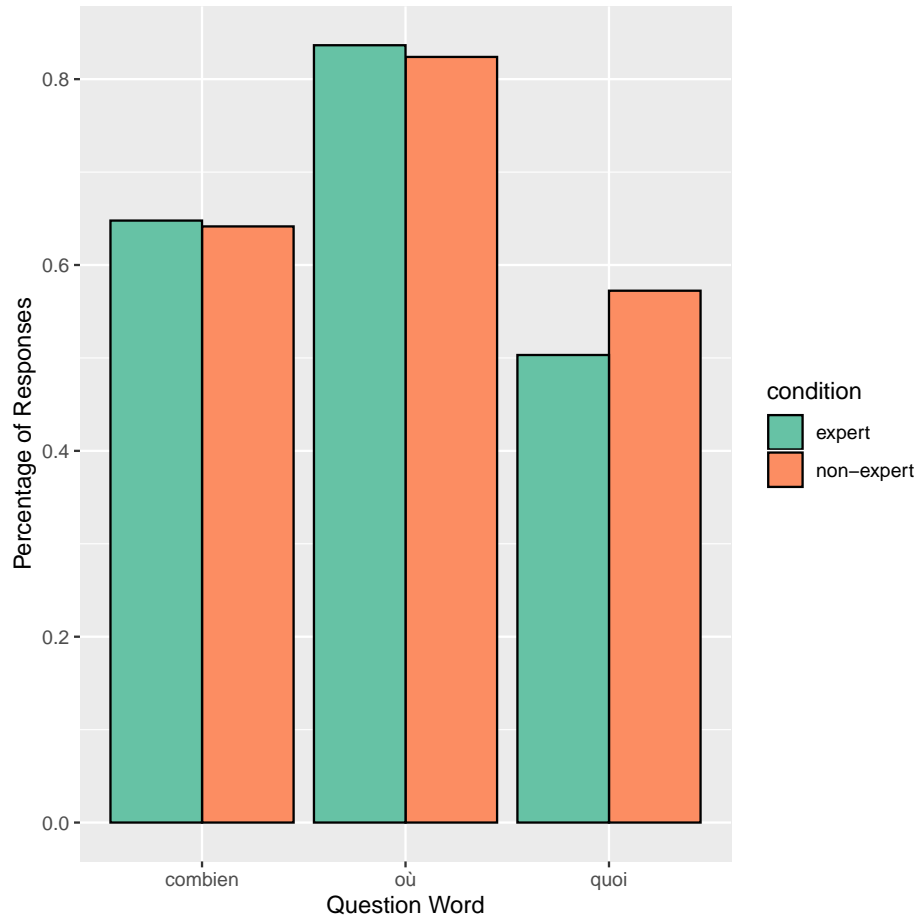

Figure 2: Use of Wh-In-Situ in Expert and Non-Expert Conditions by Question Word

5.3 Discussion

The first survey considered the expertise of the addressee, predicting that the speaker would prefer the moved form when their interlocutor was clearly an expert on the matter at hand, compared to cases when this was not clear. We did not find results, however, that supported this prediction. Instead, participants behaved in largely the same way in each condition, using *wh*-in-situ an average of 67.1% of the time. This result, while not supportive of our hypothesis,

is not absolutely devastating to the larger claims of this paper. It is possible that speaker and addressee information do not factor evenly into the decision to use the in-situ form. In particular, the claim that greater addressee authority would trigger the moved form more often was always more tenuous than the relationship between speaker information and the use of in-situ. It does not follow as clearly from the proposal roughly developed here. This is because, while when a speaker who uses the moved form of a question signals that their addressee is implicitly authoritative, the addressee is still expected to have a greater level of authority in declarative questions as well. In fact, in any "question" the addressee should have more authority than the speaker. For this reason, greater addressee authority may simply be a predictor that a particular sentence has questioning force, and not that it need be syntactically declarative or interrogative. This latter part may be solely dependent on the information that the speaker has access to.

More widely, this null result may still prove informative in some way. This survey was meant to exploit a tension in the literature between previous claims about in-situ and answerability, and between what followed from a declarative questions approach. It has been claimed that French speakers prefer to use *wh*-in-situ questions when the question is more answerable. Part of this answerability is whether or not the answer to the question is assumed to already be in the addressee's set of beliefs. In declarative questions based approach this same prediction is not borne out. In fact, it appeared possible that when the question was highly answerable because of a high degree of expertise on the part of the addressee, then the speaker would actually prefer the moved form. While this second prediction is not borne out, neither is the first prediction, that *wh*in-situ is used in questions that are highly answerable.

One of These Is Not Like the Other - Quoi vs. Qu'est-ce que

It is not necessarily surprising that different question words behaved somewhat differently with respect to *wh*-in-situ. This sort of phenomenon has been observed elsewhere in the literature (Zuckerman, 2001) with certain wh-words tending to be used more often than others. It is interesting that, in the results, the questions containing 'quoi' were the only ones that patterned in a way that was congruent with our predictions. This is the only question that we tested that used 'est-ce que' in a form that is often called a reinforced question. The reason for using this form over just the fronted from was that it occurs much more commonly than the fronted from of 'quoi.' Furthermore, the fronted form of 'quoi' tends to seem rather stilted and formal to native French speakers. Still, given this observation, it may be informative to consider how the reinforced question forms of other wh-expressions behave when compared to their in-situ or fronted form.

6 Experiment 2 - Knowledgeability of the Speaker

This experiment considered the other side of the equation, the speaker's information state. If *wh*-in-situ questions pattern like other declarative questions with respect to the information available to the speaker, then we expect for speakers to refrain from using in-situ questions when they lack the necessary information to do so. In particular, it's not acceptable to propose a commitment to something if you don't have any information relevant to that commitment. This is because a commitment amounts to a proposal to change the Common Ground in some way. It's expected that, for example, a speaker have a requisite level of information before they put forward a commitment.

6.1 Method

Stimuli

This design of this survey was largely identical to that of the Expertise Experiment (Exp. 1). As with that experiment, it consisted of a forced choice task where speakers were asked to choose which question form (moved or in-situ) they thought best fit with a given context. The contexts had the same structure, consisting of two lines, a scenario and an initial line of dialogue. As before, the experiment had 18 experimental items and 18 fillers. This time the experimental items were divided into two conditions, partial-knowledge, and no-knowledge. The fillers were repeated from the previous study.

As with the previous study, the target and filler items were preceded by a pair of practice items. For a more detailed explanation of these items, see the stimulus section of Exp. 1.

This survey contained two conditions - (1) partial-knowledge and (2) no-knowledge. As in the previous survey, these conditions were created by manipulating the context. This time, the contexts presented the speaker, rather than the addressee, as having access to extra information. A pair of example contexts are provided below. In the first, the partial-knowledge condition, the speaker is presented as having access to some extra information that constrains the possible answers to the question.

Partial Knowledge

> **Context**: Un fils à sa mère qui rentre du marché :
>
> 'A son, to his mother who is coming back from the store'
>
> **Dialogue**: Comme j'ai vu des tomates et des pâtes dans ton panier, dis-moi...
>
> 'Since I saw tomatoes and pasta in your basket, tell me...'

No Knowledge

Context: Un fils à sa mère qui rentre du marché :

'*A son, to his mother who is coming back from the store*'

Dialogue: Comme j'ai pas vu ce que tu as acheté, dis-moi...

'Since I didn't see what you bought, tell me...'

Experimental Items

In-Situ On va manger quoi ce soir?

'We are going to eat what this evening?'

Fronted Qu'est-ce qu'on va manger ce soir?

'What are we going to eat this evening?'

As in the previous survey, the experimental items were pseudo-randomized, divided into blocks of four items, one target item from each condition and 2 filler items. The blocks were set up so that they always alternated target and filler items.

In this survey, we also attempted to use the informal register as much as possible. This was done to encourage speakers to respond as they would normally speak, as opposed to how they write. French speakers are often taught that the *wh*-in-situ form is incorrect or informal, and thus told not to use it in writing.

The survey was constructed and hosted using PCIbex. The experiment scripts that we used are all available on Github.

Participants

Participants for this survey were also recruited through Prolific. 55 native French speakers (29 M, 26F) participated, and all were compensated $1.26 for their time. The speakers were all French nationals, and listed French as their native language.
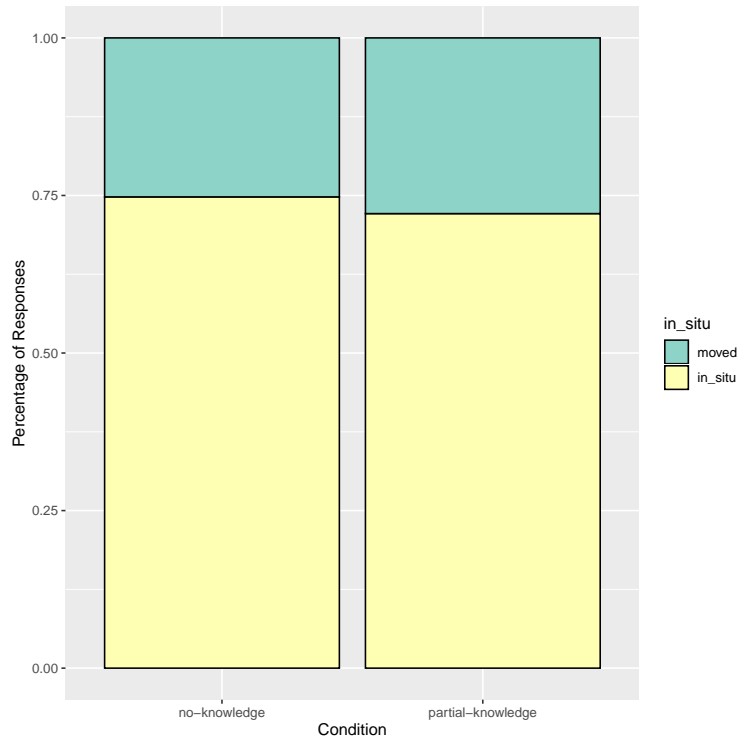
Figure 3: Use of Wh-In-Situ in No-Knowledge and Partial-Knowledge Conditions

Analysis and Predictions

This survey explored the usage of in-situ in contexts where a speaker was either given some or no knowledge related to the answer to their question. Our hypothesis was that speakers would select the in-situ form more often in the partial-knowledge condition than in the no-knowledge condition. This is linked to the idea that in-situ questions carry with them a commitment to a proposition that requires some information or authority in order to be put forward. When speakers lack the appropriate information, we expect that they will be less likely to undertake a commitment.

6.2 Results

In this survey, there was no significant difference in the results between the two conditions in question. This survey sought to understand the role of the speaker's information on their choice between the moved or in-situ question form. There were two conditions, (1) partial-knowledge and (2) no-knowledge. We predicted that speakers would select the wh-in-situ form more often in the contexts where the speaker had partial-knowledge about the potential answers to the question. The in-situ form was selected 74.8% of the time in the no-knowledge condition and 72.1% of the time in the partial-knowledge condition (Fig. 3). To test for significance, we considered a mixed effects model, with subject as a random effect. As expected from the general frequencies, there was no significant effect.

Behavior of où and combien

As with the previous survey, different question words behaved in radically different ways. In this experiment, the behavior of individual question words with respect to the experimental condition was also more marked (Fig. 4). For combien questions, the in-situ form was chosen signficantly more often in the no-knowledge condition (84.8% of the time vs. 71.5% of the time). After running a logistic regression I found that this difference was significant ($p = .00382$). Où questions, on the other hand, behaved in the complete opposite way. In-situ questions were selected more often in the partial-knowledge condition (69.1% of the time vs. 80.0% of the time). This difference, too, was significant ($p = .0238$).

6.3 Discussion

More disconcertingly, the results of the second survey were also inconclusive. The second survey considered information on the part of the speaker. We predicted that the speaker
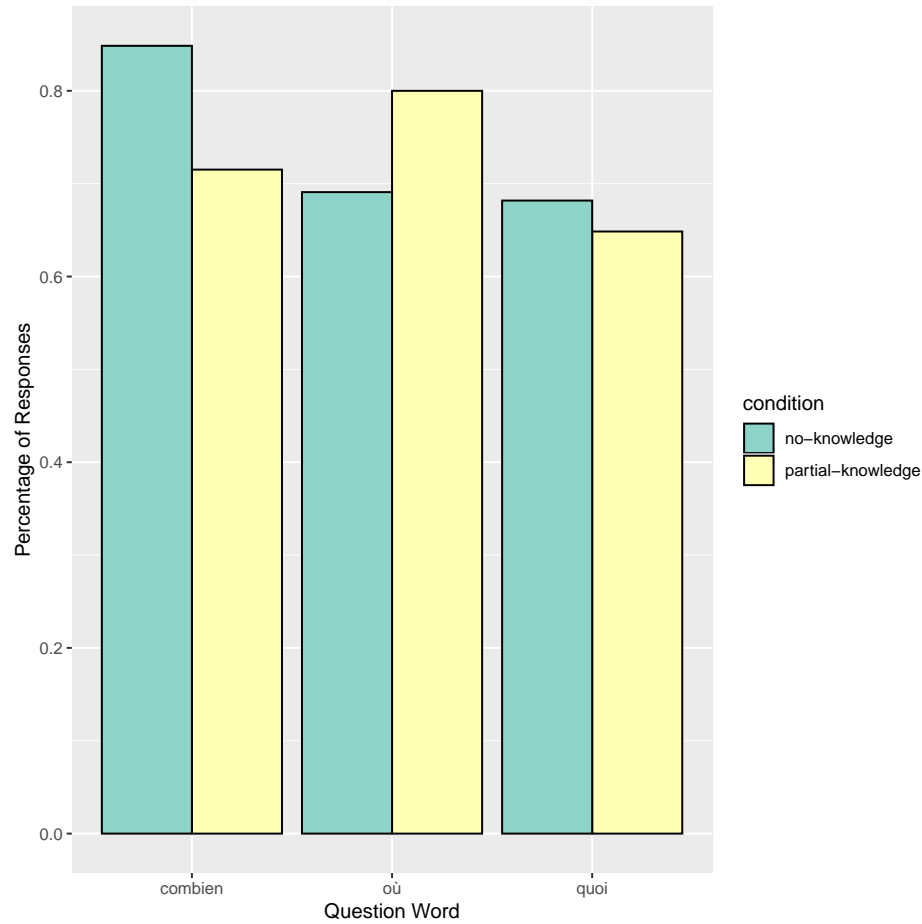
Figure 4: Use of Wh-In-Situ in No-Knowledge and Partial-Knowledge Conditions by Question Word

would prefer the in-situ form when they had access to some information restricting the set of possible answers to their question, as compared to when they didn't. This is not, however, supported by the overall results, where speakers used in-situ 74.8% percent of the time in the no-knowledge condition and 72.1% of the time in the partial-knowledge condition. This suggests that speaker-information as construed in our study was not a relevant factor.

This result may depend on the nature of the information that the participants had access to. We varied access to information relevant to the possible answers to the question. However, participants still had access to other kinds of information in each context. For example, almost

all of the contexts we designed gave participants access to the so-called 'context' or 'event' of the question. It may be that it is this kind of information, as opposed to information about the answers to the question that is relevant. Perhaps this follows from what, specifically, speakers are committing to. If they are committing to an indefinite expression, then it may just be information relevant to this expression that matters for the use of *wh*-in-situ. It is worth noting, further, that this mimics the debate in the presupposition literature between a strong contextual presupposition, and the presupposition of an answer set. If it is information about the context that matters, then it comes as no surprise that participants behaved similarly. In both the partial-information and no-information contexts, we provided contextual information that set up a bias towards the existential proposition contained in each of these questions.

Fine-Grained Differences Between Wh-Words

As was pointed out in the results for this survey, speakers used different question words differently with respect to *wh*-in-situ. It has already been observed that some question words, like 'où' (where), are used in-situ fairly often, whereas others, like 'pourquoi' (why) are never used in-situ (Chang, 1997; Zuckerman, 2001). What is interesting about the data here is that each of the question words used in the stimuli is patterning in a different way with respect to the experimental condtion. 'Combien' and 'quoi' both consistently moved more often in the partial-knowledge condition than in the no-knowledge condition, whereas the reverse was true for the questions with 'où.' Notable, each of these questions is structurally slightly different. As was addressed in the previous section, 'quoi' was varied with 'qu'est-ce que' rather than the simple fronted form. 'Combien' is interesting because it takes a DP complement, and thus forms a complex *wh*-phrase. With 'combien' then, it is possible to see a sort of split DP construction, as in

(25) a. 'Combien as-tu   lu   de livres?'
      How-many have-you read DE books

      'How many books have you read?' (Mathieu, 2004)

'Où' was then, in some ways the purest question word. While these data do not necessarily support our hypothesis, they do suggest that the issue is in fact more complicated than we have made it appear. Perhaps there are important structural differences with respect to each of these questions words that cause them to behave in somewhat opposite ways. How this may work is unclear, but it may be due to the question words' properties as indefinites and their interactions with other elements in the structure. This may influence the presence of something like semantic incorporation (Mathieu, 2004) or some sort of covert movement that influences the interpretation (Pesetsky, 1987). Whatever the explanation ends up being, this is a clear place to focus for future exploration of this topic.

7 General Discussion

In this study, we considered how the information available to the interlocutors, might influence a speaker's preference for wh-in-situ over the moved form of a question. The beauty of this attempt was, at least in part, that it sought to go deeper to explain the differing behavior of in-situ and moved questions in French, linking the presence of bias on the question to the behavior of the declarative form. In particular, we focused on the difference in information and authority between the two speakers, predicting that a greater difference in authority would result in speakers choosing the moved form more often. Because this relationship is a two-street, involving both the informational access of the speaker and the addressee, we designed two surveys which aimed to consider each side of this relationship. Neither of these predictions were born out in the data that we collected however. This issue tends to be very complex, and as seen here, gathering conclusive empirical evidence on this topic can be difficult.

It is clear, as well, that we are only just scratching the surface of understanding what is going on with French wh-in-situ. We suggest that by refining both our experimental process, as well as considering the theoretical approach in more detail, there is a path towards further understanding available.

Refining the Experimental Toolkit

One general limitation of the approach taken here may be that the task was not well adjusted for understanding this issue. This may be because the task was too difficult for our participants. They were asked to read a context, and imagine themselves in the position of a random interlocutor over and over again, and then to assess which of two question forms they would prefer. There may have been too much going on for them to have been able to have strong judgments about the appropriateness of a question in a given context. Hand in hand with this, the forced choice task is not very natural. It requires speakers to have very strong judgments about which option is right in a given context. To avoid these issues in the future, it makes sense to follow up the tasks here with a production task, in which participants are embedded into naturalistic contexts and asked to produce wh-questions as they normally would.

In order to avoid some of the issues that we ran into in previous studies, we are considering a followup to the knowledgeability experiment where participants are asked to play a game in which we manipulate their access to information each turn, and then elicit a question with a particular question word. In performing the experiment this way, we can ensure data that is somewhat more naturalistic. We are also able to design simpler, visual scenarios that let us control exactly what kinds of information that participants have access to. One way that we are considering doing this is through the use of grids that are partially filled with images of household objects. By sometimes blacking out some of the grid spaces, we are able to control

how detailed our participants' information is. By constructing this as a production task, we will be able to make stronger claims about what speakers would say in each of the contexts that we design. In doing so, we may be able to shed additional light on the issues raised here, such as the differing behavior of different question words and the question of what specific kinds of information might be relevant to the use of *wh*-in-situ.

Exploring the issue more deeply

It is clear that this issue is far from solved. Looking at previous accounts of *wh*-in-situ, there's a lack of strong empirical data on the discourse contexts in which it can be used in French. While many speakers have some intuition that *wh*-in-situ questions are better when there is already information in the context backing up the question, it is hard to isolate what, if any, information is relevant to its usage. In order to understand this phenomenon new approaches need to be taken and the data need to be considered in more detail

Our current approach is limited by the theoretical apparatus available to us. In order to continue asking meaningful questions on this topic, our current theoretical approach needs to be refined. A more careful development of theory may lead to more fruitful attempts to test and develop the approach. As was observed in the discussion of the second experiment, the specific nature of the information being committed to may alter what kinds of information are relevant to a commit-based approach to wh-questions. If speakers are committing, for example, just to the so-called event or context of the utterance (which is essentially an indefinite expression), then it may be the case that only information supporting the truth of that expression is relevant to the use of the *wh*-in-situ form. By more carefully considering the model that we want to adopt, we can more effectively test and refine our hypotheses.

It is also clear that certain question words may behave differently with respect to interlocu-

tor information states and wh-in-situ. In order to confirm this, this issue must be followed up with. Use of an elicitation task may allow us to better understand when and how these words are employed. If it should be the case that different question words do behave very differently with respect to this issue, it may begin to shine a deeper light on what structural and pragmatic factors are controlling the use of wh-in-situ.

While there is not much that can be said from a null result, the data do suggest that this is a very complicated picture. Some question words, but not others may be influenced by the factors that we pinpointed in this experiment. As highlighted above, the question word où seemed to pattern how we expected with respect to speaker information. Whether this truly supports this account or not is not fully clear, but it does suggest that the issue is far from closed. In addition, the usage of wh-in-situ may require a very fine-grained picture of the information relevant to the question. A more articulated view of the kinds of commitments utterances can carry with them would go part of the way towrads resolving this issue. It is clear that the question of optional *wh*-in-situ in French continues to be a thorny one.

References

Bobaljik, J., & Wurmbrand, S. (2015). Questions with declarative syntax tell us what about selection? *Ángel Gallego & Dennis Ott (eds.)*, *50*, 13–31.

Bošković, Ž. (2000). Sometimes in situ, sometimes in spec-CP'. *Step by Step: Essays on Minimalist Syntax in Honor of Howard Lasnik*, 53–87.

Chang, L. (1997). *Wh-in-situ phenomena in french* (Unpublished doctoral dissertation). University of British Columbia.

Cheng, L. L., Rooryck, J., et al. (2000). Licensing wh-in situ. *Syntax*, *3*, 19.

Coveney, A. (1988). Pragmatic constraints on interrogatives in spoken french.

Déprez, V., Syrett, K., & Kawahara, S. (2013). The interaction of syntax, prosody, and discourse in licensing french wh-in-situ questions. *Lingua*, *124*, 4–19.

Engdahl, E. (2006). Information packaging in questions. *Empirical issues in syntax and semantics*, *6*(1), 93–111.

Gunlogson, C. (2004). *True to form: Rising and falling declaratives as questions in english*. Routledge.

Gunlogson, C. (2008). A question of commitment. *Belgian Journal of Linguistics*, *22*(1), 101–136.

Hamblin, C. L. (1973). Questions in montague grammar. *Foundations of language*, *10*(1), 41–53.

Hamlaoui, F. (2008). On the role of discourse and phonology in french wh-questions. *Ms. University of Ottawa*.

Haspelmath, M. (2001). *Indefinite pronouns*. OUP Oxford.

Honcoop, M. (1998). *Dynamic excursions on weak islands* (Vol. 13). Holland Academic Graphics

The Hague.

Karttunen, L. (1977). Syntax and semantics of questions. *Linguistics and philosophy*, *1*(1), 3–44.

Mathieu, E. (2004). The mapping of form and interpretation: The case of optional wh-movement in french. *Lingua*, *114*(9-10), 1090–1132.

Obenauer, H.-G. (1994). *Aspects de la syntaxe a-barre: Effets d'intervention et mouvements des quantifieurs* (Unpublished doctoral dissertation). Paris 8.

Oushiro, L. (2011). Wh-interrogatives in brazilian portuguese: the influence of common ground. *University of Pennsylvania Working Papers in Linguistics*, *17*(2), 17.

Pesetsky, D. (1987). Wh-in-situ: Movement and unselective binding. *The representation of (in) definiteness*, *98*, 98–129.

Pires, A., & Taylor, H. (2007). The syntax of wh-in-situ and common ground. In *Proceedings from the annual meeting of the chicago linguistic society* (Vol. 43, pp. 201–215).

Richards, N. (2010). *Uttering trees* (Vol. 56). MIT Press.

Richards, N. (2016). *Contiguity theory* (Vol. 73). MIT Press.

Stalnaker, R. C. (1978). Assertion. In *Pragmatics* (pp. 315–332). Brill.

Starke, M. (2001). *Move reduces to merge: A theory of locality* (Unpublished doctoral dissertation). Ph. D. thesis, University of Geneva. Available at http://ling. auf. net . . . .

Zuckerman, S., & Hulk, A. (2001). Acquiring optionality in french wh-questions: An experimental study. *Revue québécoise de linguistique*, *30*(2), 71–97.

A List of Experimental Items

Questions for Target Items: Exp. 1 & Exp. 2

In-situ Questions:

On va manger quoi ce soir?

Elles sont où, les clefs?

Ça coûte à peu près combien une voiture comme ca?

Il a fait quoi, le maire?

Il est où, ce livre?

Il coûte à peu près combien, ce jeans?

On a quoi à réviser pour le prochain examen?

Il s'arrête où le train de dix heures?

Il coûte combien, le plat du jour?

Moved Questions:

Qu'est-ce qu'on va manger ce soir?

Où elles sont, les clefs?

Combien ça coûte à peu près une voiture comme ça?

Qu'est-ce qu'il a fait, le maire?

Où il est, ce livre?

Combien il coûte à peu près, ce jeans?

Qu'est-ce qu'on a à réviser pour le prochain examen?

Où il s'arrête le train de dix heures?

Combien il coûte, le plat du jour?

B   Practice Items

The Practice Items

Practice 1 - Test for Native French

Context: Une maman, à sa copine : :

'A mother, to her friend

Dialogue: Je veux que mes enfants mangent sainement, mais ...

'I want my kids to eat health but...'

Ill-Formed Ils souvent mangent des bonbons

*They eat often candy

Well-Formed Ils mangent souvent des bonbons

They often eat candy

Non-expert

Context: Un étudiant à son copain étranger :

'A student to his international friend'

Dialogue: Ce n'est pas faux, mais ...

'That is not wrong, but...'

Informal Je dirais jamais ça.

'I'd never say that'

Formal Jamais, je ne dirais cela.

'I'd never say that'