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## Questions in context: the case of French wh-in-situ

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## 6 Two mechanisms to interpret *wh*-in-situ

### 1 Introduction

Chapter 5 investigated the role of context in intervention effects. It built on the observation that a sentence which displays intervention effects, like (1), may become acceptable given a particular type of context, as in (1') (Baunaz 2005; 2011; 2016; Starke 2001).


- (1) \**Tous les témoins ont reconnu qui ?*  
 all the witnesses have recognized who  
 'Who did all the witnesses recognize?'

- (1') During a trial, witnesses and defendants are confronted. One of the defendants has been accused unanimously. The journalist asks:

*Et tous les témoins ont reconnu qui ?*

[Baunaz 2016: 157, ex. 4ob]

I assumed in Chapter 5 that in the unacceptable sentence in (1), the *wh*-phrase must move covertly to the left periphery and that an intervener like *tous les N* 'all the N' blocks covert movement of the *wh*-phrase, as shown in (2).

- (2) [<sub>CP</sub> ... intervener ... *wh*-phrase]  


I proposed that in a context that voids intervention effects (1'), the *wh*-in-situ question contains a contextually supplied choice function (cf. Kratzer (1998)), as displayed in (3).

- (3)  $\llbracket \text{tous les témoins ont reconnu qui} \rrbracket =$   
 $\{p \mid p = \text{all the witnesses have recognized CH(person)}\}$

In (3),  $CH(\textit{person})$  represents the *wh*-phrase *qui* ‘who’. The choice function ranges over the set of all relevant persons and selects one person from the set. As the use of a choice function forms an alternative for covert movement, the intervention effects configuration in (2) does not arise. I suggested in Chapter 5 that the use of a choice function requires a particular type of context (cf. (1')) because such a context makes the choice function recoverable for the interlocutor. The necessary context makes the *wh*-in-situ question ‘Maximally Given’ (entirely given in the sense of Büring (2016)), which is when a Contextually Salient Meaning (CSM) entails the answer to the question. I mentioned that when this is the case, the question can be paraphrased using a definite description corresponding to a contextually given referent as in (4).

- (4) The defendant who has been recognized by all the witnesses  
 – who is it?

Under my proposal, a choice function is only available if a French *wh*-in-situ question is Maximally Given (3); otherwise, covert movement is needed (2). I will refer to the questions interpreted via the two mechanisms as ‘covert movement *wh*-in-situ’ and ‘choice function *wh*-in-situ’ respectively (5).

- (5) *French wh-in-situ questions interpreted via the two mechanisms*
1. Covert movement *wh*-in-situ (cf. (2))
  2. Choice function *wh*-in-situ (cf. (3))

In this chapter, I extend the proposal that French has these two mechanisms to interpret *wh*-in-situ questions beyond intervention effects in two ways. First, I investigate several other properties of questions interpreted via the two mechanisms. I suggest that not all speakers avail themselves of both mechanisms. More specifically, some speakers have choice function *wh*-in-situ, but not covert movement *wh*-in-situ. Second, I

extend the proposal beyond French. I show that the choice function account is also a promising direction of research for contextually restricted *wh*-in-situ in *wh*-fronting languages like English and German. In particular, the chapter has the following goals:

(6) *Goals of the chapter*

- G1. Explore the properties of the questions interpreted via the two mechanisms.
  - a. Investigate the acceptability of *wh*-in-situ questions with a form like *You want a what?*, i.e. with an indefinite article, in a context that makes the question ‘Maximally Given’ as compared to (i) *wh*-in-situ in an out of the blue context and (ii) echo questions.
  - b. Investigate the acceptability of *wh*-in-situ in an out of the blue context in indirect questions, inside a strong adjunct island and in long-distance questions.
  - c. Account for the observed data variation regarding the extra-strong presupposition and the sentence-final rise, in addition to intervention effects.
- G2. Show that the choice function account is also a promising direction of research for contextually restricted *wh*-in-situ in *wh*-fronting languages like English and German.
  - a. Explore to what extent the properties of *wh*-in-situ questions in English and German resemble those of French choice function *wh*-in-situ.
  - b. Compare the properties of *wh*-in-situ in English and German to those of echo questions.

The structure of the chapter is as follows. Section 2 reports on a rating study that compares the acceptability of French covert movement *wh*-in-situ, choice function *wh*-in-situ and echo questions with a form like *You want a what?*, i.e. with an indefinite article (G1a). The study shows that choice function *wh*-in-situ questions with this form are not generally accepted, but that they are rated higher than covert movement *wh*-in-situ

questions with the same form. French echo questions with this form are judged perfectly natural. The results provide more insight into the properties of choice function *wh*-in-situ and will be discussed in light of the claim that there are two types of *wh*-in-situ in French.

Subsequently, I return to the data variation described in Chapter 2 and re-investigate it from the perspective that French has two types of *wh*-in-situ. First, Section 3 reports on a second rating study that investigates the acceptability of *wh*-in-situ in an out of the blue context in indirect questions, inside a strong island and in long-distance questions (G1b). Under my proposal, such a context would exclude the use of a choice function and trigger covert movement. Then Section 4 discusses how the seemingly contradictory data regarding the extra-strong presupposition, the sentence-final rise and intervention effects (G1c) follow from the hypothesis that there are two types of speakers. Whereas some speakers only have the choice function option to interpret *wh*-in-situ, others have both options in (5).

Taking a cross-linguistic perspective, I then extend the idea of a contextually supplied choice function to test if it can also cover contextually restricted *wh*-in-situ in *wh*-fronting languages like English and German. Section 5 explores to what extent the properties of *wh*-in-situ in English and German resemble those of French choice function *wh*-in-situ (G2a). Section 6 compares *wh*-in-situ questions in English and German to echo questions. It shows that the two types of questions share part of their characteristics and makes several observations about echo questions (G2b).

Following a discussion in Section 7, Section 8 concludes with an overview of the established properties of French *wh*-in-situ questions interpreted via the two mechanisms.

## 2 *Wh*-in-situ with *des quoi*: a rating study

This section investigates the acceptability of choice function *wh*-in-situ with a form like *You want a what?*, i.e. with an indefinite article. The acceptability of such questions is compared to that of (a) covert movement *wh*-in-situ and (b) echo questions, with the same form (G1a).

As discussed in Section 2 of Chapter 3, a known property of echo questions (at least in English and German) is their ability to take a non-standard form as in (7a) (Bolinger 1987; Cooper 1983; Reis 1992). In the echo question in (7a), the *wh*-phrase only replaces part of the DP, as it is still preceded by the indefinite article. Other than in echo questions, questions with this form are generally assumed to be unacceptable. This is illustrated in (7b) for a *wh*-fronted question and in (7c) for an in-situ *wh*-phrase in a multiple question.

- (7) a. A: John bought a #####<sub>[noise]</sub>.  
       B: John bought a WHAT? (I did not hear you.)
- b. \*A what did John buy?  
 c. \*Who bought a what?

Yet, an example that I overheard in the Keukenhof (8) provides an indication that French choice function *wh*-in-situ may also occur with this form. The Keukenhof is a large flower garden in the Netherlands, which is visited by many tourists. The flower beds have signs displaying the names of the flowers.

- (8) Two French ladies are visiting the Keukenhof. One of them, moving away from the other, walks towards a flower bed. She gets ready to bow over to look at the sign displaying the name of the flowers. Apparently thinking out loud, she says:

Ce sont des quoi alors ?  
 these are INDF.ART.PL what so  
 'So what are these?'

The French word *des* is the plural indefinite article. The form *des quoi* 'DES what' is therefore the same as *a what* in English, albeit in the plural. The question in (8) seems to involve choice function *wh*-in-situ (it is clearly not an echo question). The example is less straightforward than the examples of choice function *wh*-in-situ in Chapter 5. In (8), the context does not establish such a clear referent for the *wh*-phrase as 'the

defendant who has been recognized by all the witnesses' ((1') and (4) above), about whom the *wh*-in-situ question requires further specification. Yet in (8), there is still a fixed referent for the *wh*-phrase. The French lady must have seen many types of flowers in the Keukenhof, accompanied by signs. This made salient for her that the flower bed in front of her also contains a particular type of flowers; she is wondering what this type of flowers is. Consequently, it is already salient for the French lady that there is a name of a specific type of flowers on the sign in front of her; her question asks for further specification of this known referent, i.e. the name on the sign. Like in the examples in Chapter 5, the question can therefore be paraphrased using a definite description, as in (9).

(9) The name of the flowers as mentioned on the sign – what is it?

As a result, the question in (8) can be interpreted as Maximally Given. Under the proposed analysis, the context therefore licenses the use of choice function *wh*-in-situ.

The indefinite article *des* also appears to be part of what is salient (the CSM) in (8). The French lady must have seen many types of flowers on her walk in the Keukenhof, such as *des tulipes* 'DES tulips', *des jacinthes* 'DES hyacinths' and *des jonquilles* 'DES daffodils'. This made salient for her that the flowers mentioned on the sign in front of her are also DES [name of the type of flowers mentioned on the sign], i.e. making the word *des* salient. This is to some extent similar to the echo question in (7a). In (7a), the indefinite article is more obviously part of what is salient, because it was mentioned in the preceding utterance. Yet in the question in (8), the *wh*-phrase is also preceded by the indefinite article, replacing only part of the DP.

The example in (8) raises the question of to what extent questions with *des quoi* 'DES what' are acceptable outside of echo questions, i.e. in choice function *wh*-in-situ. A related question, which is relevant for the distinction proposed in Chapter 5, is whether there is any difference in acceptability between choice function *wh*-in-situ and covert movement *wh*-in-situ questions with this form. In addition, the literature (I know of)

does not mention that echo questions with an indefinite article preceding the *wh*-phrase are acceptable in French. Although the expectation based on other languages is that they are, the rating study had yet to confirm this.

I set up a rating study with three conditions, which consisted of three types of context preceding a French *wh*-in-situ question (10).

(10) *Conditions/types of context*

- A. Out of the blue, avoiding Maximal Givenness
- B. Maximal Givenness (non-echoic)
- C. Echo question context

Under the proposed analysis, the context in Condition A should induce an interpretation via covert movement, as choice function *wh*-in-situ requires a context that makes the question Maximally Given. Covert movement *wh*-in-situ does not impose any specific restrictions on the context. It is therefore not ruled out that a covert movement *wh*-in-situ question is uttered in a context that makes it Maximally Given. However, my hypothesis regarding covert movement *wh*-in-situ was that it is infelicitous with *des quoi* 'DES what'; the main point of interest was whether questions with *des quoi* 'DES what' improve in a context that makes them Maximally Given (Condition B), i.e. a context that licenses the use of a choice function.

In the next sections, I present the materials (Section 3.1), procedure (Section 3.2), participants (Section 3.3), analysis (Section 3.4), results (Section 3.5) and discussion of the results (Section 3.6) of this study.

## 2.1 Materials

I used *wh*-in-situ questions of the form in (11).

- (11) Tu as acheté des quoi ?  
 you have bought INDF.ART.PL what  
 'You've bought some what?'



The *wh*-word *quoi* 'what' has the position of an NP rather than a DP in (11), as it follows the indefinite article. In French, the singular indefinite article is marked for gender: there is the form *un* 'a' for masculine and *une* 'a' for feminine nouns. To avoid this difference, I used a plural indefinite article, which always has the form *des*. There were fifteen target sentences, which were very similar in form. The subject was always *tu* 'you (informal)'. (French *wh*-in-situ is more commonly used in an informal register (Boucher 2010a; Myers 2007; Quillard 2000).) It was followed by a second person auxiliary and a participle. The *wh*-phrase *quoi* 'what' was the direct object and the final element in the sentence.

The target sentences were preceded by a description of the conversational setting. It described whom the speaker of the sentence was talking to and in what context. It always ended with an equivalent of 'you say' or 'you ask' (followed by a ':'). (12) is an example of an item in an Out of the blue context (Condition A).

(12) *Out of the blue context (Condition A)*

Tu décides de rendre visite à ta famille. Quand tu arrives, tes parents sont là mais ta sœur, Caroline, s'est absentée pour aller en ville. Quelques heures plus tard, elle rentre. Tu lui dis :

Ah enfin tu es rentrée ! Alors, tu as acheté des quoi ?

'You decide to visit your family. When you arrive, your parents are there, but your sister, Caroline, has left to go into town. She returns a few hours later. You say to her:

Oh you're finally back! So what did you buy?  
(Lit: 'So, you've bought DES what?')

The contexts were constructed to be natural and to indicate that the register is informal. They were written and checked by at least three

native speakers of French.<sup>50</sup> The contexts for the items were manipulated to create the three conditions.

In the Out of the blue context (Condition A), great care was taken to avoid Maximal Givenness. For instance, in (12) above, it is not mentioned in or implied by the context in any way that the sister went shopping or engaged in any buying activity. Though we cannot entirely control what becomes salient for a speaker in a particular context, the context that I constructed did not by itself make the content of the question salient. At the same time, the Out of the blue context still allowed for the existential implicature of *wh*-questions (see Section 1 of Chapter 1). In other words, it still made the assumption plausible that the addressee might have bought things.

In Condition B, the context was designed to make the *wh*-in-situ question including the indefinite article Maximally Given. In particular, the context first mentions that three people *all* have a certain property, mentioning the indefinite article *des*. For example, in (13), Charlotte, Marianne and Alice *ont toutes acheté des nouvelles chaussures* ‘have all bought DES new shoes’. Then, mentioning the indefinite article twice more, this is specified for two of the three people. In (13), it is mentioned that Charlotte *a acheté des Converse* ‘bought DES Converse’ and Marianne *des Nike* ‘DES Nikes’.

(13) *Maximal Givenness context (Condition B)*

C'est la saison des soldes. Tu tombes sur trois amies à toi, Charlotte, Marianne et Alice, qui sont allées en ville pour faire du shopping. Elles ont toutes acheté des nouvelles chaussures. Charlotte te dit qu'elle a acheté des Converse, Marianne des Nike. Tu te tournes vers Alice et lui demandes :

Et toi, tu as acheté des quoi ?

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<sup>50</sup> I would like to thank Romane Pedro, Antoine Cochard, Sophie Heinis and Marguerite Blaque. I couldn't have wished for better assistance in designing the two rating studies reported in this chapter. A special thanks goes to Romane, who also obtained judgments for me from other native speakers around her.

‘It’s the sales season. You run into three friends of yours, Charlotte, Marianne and Alice, who have gone into town to go shopping. They all bought a new pair of shoes. (Lit: ‘They have all bought *DES* new shoes.’) Charlotte tells you that she bought some Converse, Marianne that she bought some Nikes. (Lit: ‘Charlotte says to you that she has bought *DES* Converse, Marianne *DES* Nikes.’) You turn to Alice and ask her:

And what did YOU buy? (Lit: ‘And you, you’ve bought *DES* what?’)

This is designed to make salient that the third person also bought *DES* [a specific brand of shoes]. The *wh*-in-situ question then asks what it is that she bought using the indefinite article *des*. The contrastive topic *et toi* ‘and you’ was added to increase the sense of analogy.

The contexts in Condition C were designed to trigger an echo question expressing auditory failure, as in (14).

(14) *Echo question context (Condition C)*

Tu es en train de partir de chez toi. Tu aperçois ton voisin, qui est un bon ami à toi, devant sa porte. Intrigué(e), tu regardes la grosse boîte qu’il a dans ses bras. Lorsqu’il voit que tu la regardes, il dit : « j’ai acheté des... (une voiture klaxonne) ». Puisque tu n’as pas entendu ce qu’il a dit à cause du klaxon, tu lui demandes :

Tu as acheté des quoi ?

‘You are in the process of leaving your home. You notice your neighbour, who is a good friend of yours, in front of his door. Intrigued, you look at the big box he is holding. When he sees you looking, he says: “I’ve bought some (lit: *DES*) ... (a car honks)”. As you didn’t hear what he said because of the car horn, you ask:

You’ve bought some what? (Lit: ‘You’ve bought *DES* what?’)

The context mentions another person's utterance, the relevant part of which is interrupted by a noise. This utterance contains the same verb as the target sentence and crucially the indefinite article *des*. Different noises featured in the context descriptions ('a dog barks', 'the phone rings' etc.), but the noise always covered the NP rather than the DP. The last sentence of the context made clear that the *wh*-in-situ question is asked *because* of the auditory failure.

The fifteen target sentences were presented in each of the three conditions/types of context, yielding 45 items. These were intermingled with 75 fillers. 45 of these were the items of the rating study I report in Section 4: the items of the two studies acted as fillers to each other. In addition, there were thirty fillers that were declaratives. Half of these were simply declaratives that ought to be felicitous (15), while the other half were designed to be comprehensible but infelicitous (16). The infelicitous sentences all contained a reversal of a noun (*taille* 'size') and a determiner (*une* 'a') and also an adjective that ought to precede the noun, but followed it (*petite* 'small').

- (15) Tu as passé la journée avec ta cousine que tu ne vois pas souvent. Tes parents te demandent ce que vous avez fait. Tu leur parles de ce que vous avez acheté, puis tu leur dis :

On a mangé un éclair au chocolat.

'You spent the day with your cousin, whom you don't often see. Your parents ask you what the two of you did. You tell them about what you've bought, then you say:

We ate a chocolate éclair.'

- (16) Un couple d'amis à toi va bientôt avoir un enfant. Tu décides donc d'acheter quelque chose pour leur bébé. Une fois rentrée chez toi, tu racontes à ton mari que tu as trouvé un cadeau pour le bébé de vos amis. Tu lui dis :

\*J'ai choisi taille une petite.

Correct word order: *J'ai choisi une petite taille.*

'A couple you are friends with is soon having a child. You therefore decide to buy something for their baby. When you are back home, you tell your husband that you've found a present for the baby of your friends. You say:

I've chosen a small size.'

The declarative fillers had several purposes. They served to create some variation in the trials of *wh*-in-situ questions. More importantly, they were designed to encourage participants to use the whole scale in their rating of the sentences (see below). One half of the fillers were designed to be maximally natural (acceptable) and the other half was designed to be maximally unnatural (unacceptable). Another reason was to build in attention checks (cf. Oppenheimer et al. 2009). Attention checks are trials that are used to detect whether a participant is paying attention. If a participant would judge all declaratives in the middle of the scale, this would be grounds to exclude them from the results.

The materials that were used in this study can be found in Appendix E.

## 2.2 Procedure

I created an online survey using Qualtrics survey software (Qualtrics 2019), which was distributed through Prolific (Prolific 2019).<sup>51</sup> It was

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<sup>51</sup> Many thanks to Roxanne Casiez, who shared the information she had gathered with me.

explained via an instruction screen that the participants would be shown a series of French sentences, each preceded by a short description of the conversational setting. The participants were asked to judge how natural each sentence seemed to them in the context in which it appeared, according to their own personal intuition. I used the word ‘natural’ rather than ‘acceptable’ to avoid prescriptive reactions as much as possible. The instructions mentioned that the study concerned the type of French that is spoken in informal every day conversation. The participants were also requested to read the context descriptions very carefully. These instructions can be found (in French) in Appendix D.

Each subsequent screen presented one item or filler preceded by a context description. Participants were asked to indicate the naturalness of the sentence, i.e. the sentence following the context, by clicking on a continuous scale as in Figure 1 (cf. Chimi & Russell 2009).



Figure 1. Response format of the rating task

An advantage of this format is that a continuous scale is more finely granulated than for example a Likert scale with five or seven discrete points. A continuous scale also seems to fit well with the nature of acceptability judgment data, which form a continuum (Sprouse 2007; Sprouse & Almeida 2013). Upon presentation to a participant, the slider was situated in the middle of the scale. The respondent was required to move the slider before she could proceed to the next trial. (One could of course choose to move the slider back to the middle of the scale.) The position of the slider that was chosen corresponded to a position on a scale from 1.0 to 5.0, i.e. a 50-point scale. This underlying scale was not visible to the participants (cf. Figure 1). The screen also did not display the numeric value that was chosen (e.g. a rating of 4.2).

The participants were randomly assigned to three groups (A, B, C), each consisting of one third of the participants. Each group of participants was presented with part of the stimuli according to a Latin square design, as displayed in Table 1.

Table 1. Distribution of items over participants

| GROUP   | CONDITION A | CONDITION B | CONDITION C |
|---------|-------------|-------------|-------------|
| Group A | items 1-5   | items 6-10  | items 11-15 |
| Group B | items 6-10  | items 11-15 | items 1-5   |
| Group C | items 11-15 | items 1-5   | items 6-10  |

In the same way, each group of participants was presented with one third of the items of the other rating study, which as I said acted as fillers. The declarative fillers were presented to all participants. This meant that each group of participants was presented with fifteen items, fifteen fillers from the other study and thirty declarative fillers, yielding sixty trials. These were presented in a randomised fashion, followed by a series of demographic questions.

### 2.3 Participants

64 monolingual native speakers of French, who were living in France at the time of testing, were reimbursed to participate in the rating study (36 male and 26 female). I targeted speakers of a limited age range to obtain a more homogeneous group, resulting in participants of 20-34 years old. None of them reported any language related disorders.

### 2.4 Analysis

I first ran a null model with the rating on the 50-point continuous scale (1.0 to 5.0) as the dependent variable and intercepts of items and participants as random factors. Adding the type of context/condition as a fixed factor significantly improved the model's fit ( $p < 0.001$ ). The best fitting converging model turned out to be a linear mixed-effects model

with the rating as the dependent variable, type of context/condition as a fixed factor and slopes of items and intercepts of participants as random factors. Adding other fixed factors, like age, experimental group, time taken to complete the survey or sex did not improve the model. I used the *lmer* function of the *lme4* package (Bates et al. 2015) in R (R Core Team 2019). P-values were obtained using the package *lmerTest* (Kuznetsova et al. 2017).

I had to exclude one participant for the models to converge. The participant was selected based on trellis graphs, which showed a pattern for this participant that deviated from that of the other participants. Subsequent inspection of the best model showed that it suffered from outliers. I therefore removed all outliers with a standard residual of more than 2.5 standard deviations from zero, which was 2.2% of the data (41 outliers). The analysis was run for each reference category (Out of the blue, Maximal Givenness, Echo question context) to obtain all relevant comparisons. The results in the next section report the analyses for the remaining 63 participants.

## 2.5 Results

The results showed that there were clear differences between *wh*-in-situ questions with *des quoi* ‘DES what’ across the three conditions. All differences were highly significant, as is shown in Table 2.

Table 2. Results of a linear mixed-effects model for the rating of *wh*-in-situ questions with *des quoi* ‘DES what’

| COMPARISON                | $\beta$ | SE   | P       |
|---------------------------|---------|------|---------|
| Condition B – Condition A | 0.53    | 0.06 | < 0.001 |
| Condition C – Condition B | 2.26    | 0.06 | < 0.001 |
| Condition C – Condition A | 2.79    | 0.06 | < 0.001 |

The mean rating of *wh*-in-situ questions with *des quoi* ‘DES what’ in the three conditions is displayed in Figure 2.



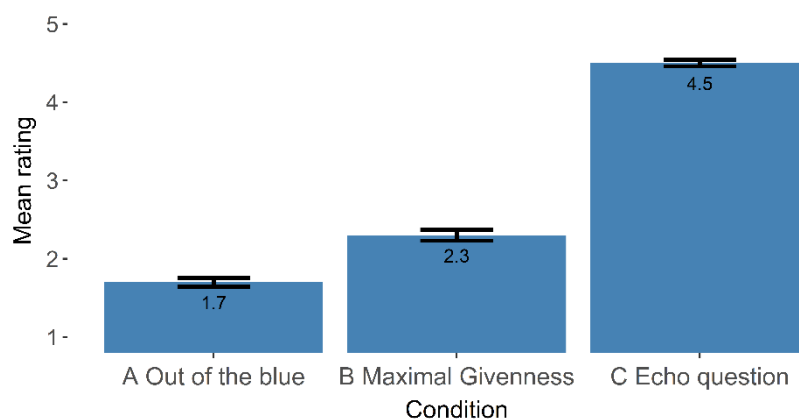


Figure 2. Mean rating of *wh*-in-situ questions with *des quoi* 'DES what' in the three conditions

With a mean rating of 2.3, the questions were not judged to be very natural in the Maximal Givenness context. At the same time, they were judged significantly more natural in that context than in the Out of the blue context. In the echo question context, the questions were judged to be very natural: they received a mean rating of 4.5 on a scale from 1.0 to 5.0. The difference between this condition and the other two conditions was large.

The number of times that participants selected the ends of the scale, i.e. the ratings '1' and '5', also reflect the differences. These are displayed in Table 3.

Table 3. The number of times that questions received the ratings '1' and '5' in each condition

| CONDITION                     | <i>N</i> | <i>N</i> RATING '1' | <i>N</i> RATING '5' |
|-------------------------------|----------|---------------------|---------------------|
| Condition A Out of the blue   | 315      | 128                 | 5                   |
| Condition B Maximal Givenness | 315      | 66                  | 15                  |
| Condition C Echo question     | 315      | 0                   | 174                 |

Figure 3 displays violin plots of the ratings' distributional pattern. The red area represents the distribution of the ratings in each condition and the boxplots also show the median and interquartile range.

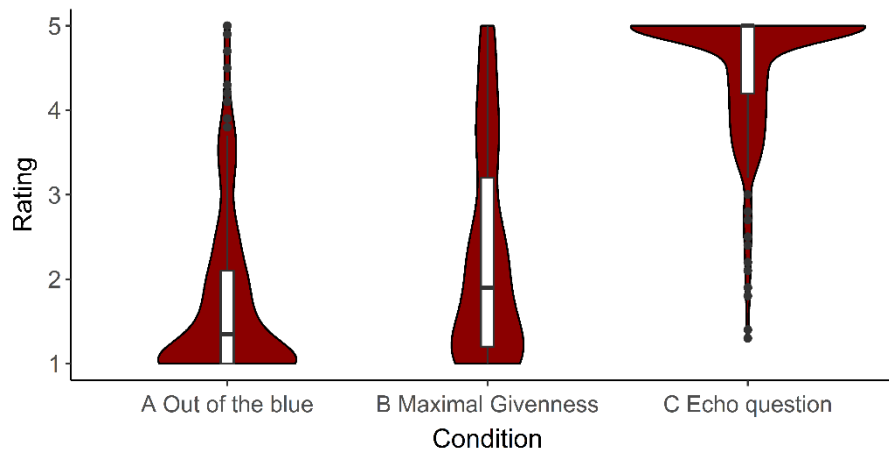


Figure 3. Violin plots with box plots of *wh*-in-situ questions with *des quoi* 'DES what' in the three conditions. The red areas and the boxplots in them display the distribution of the ratings.

In line with Table 3, the violin plots indicate that there was quite some variability regarding the ratings of sentences in a given condition.

## 2.6 Discussion of the results

The above results show that *wh*-in-situ questions with *des quoi* 'DES what' were not rated very highly in Condition B (Maximal Givenness). At the same time, such questions were rated significantly higher in a context that made them Maximally Given (Condition B) than in a context that did not (Condition A). The combination of these two results is not straightforward to interpret. Given the fact that the ratings in Conditions A and B differ from each other, why are the ratings in Condition B (Maximal Givenness) still so low? On the other hand, if questions in Condition B are not very good, why are they judged significantly higher ( $p < 0.001$ ) than those in Condition A? When I informally discussed a few sentences with informants in preparation for the rating study, most of them rated questions similar to the ones in Condition B at '4' or '5' on a 5-

point scale. These informants were native speakers of French (non-linguists) in the same age group as the participants. I also presented one such sentence during a talk at the University of Nantes, where the audience also judged it to be acceptable. In what follows I will discuss two possible reasons for the relatively low ratings in Condition B (Maximal Givenness) as compared to the informal judgments of my informants.

One reason for the low ratings in Condition B may relate to the precise characteristics of the items and subtle differences between them. There were rather large differences between the ratings of items in Condition B; the median rating of each item is shown in Figure 4.

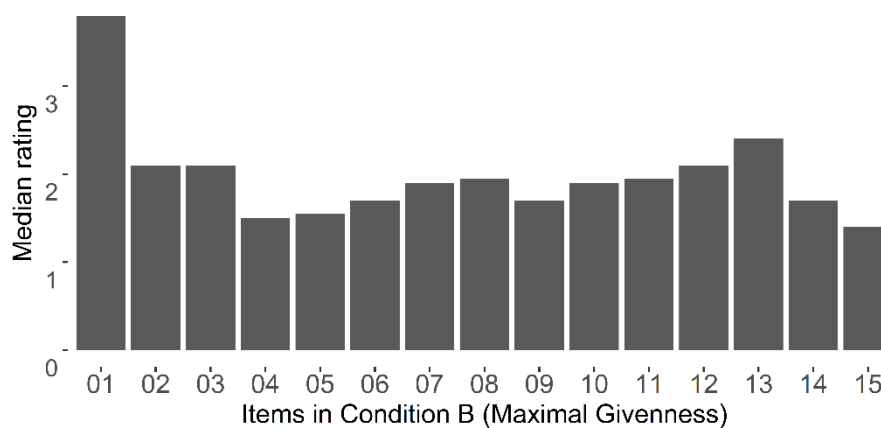


Figure 4. Median rating of the individual items in Condition B (Maximal Givenness)

The item I presented during my talk at the University of Nantes was item 01 in this figure. As Figure 4 shows, this item also received a relatively high rating in the study: a median rating of 3.8.

The differences among the items' ratings may relate to their exact properties, in particular the degree to which the word *des*, the plural indefinite article, is made salient by the context. I discuss this in relation to item 01 in Figure 4. It was presented in example (13) above, repeated here for convenience.

(13 - Repeated)

C'est la saison des soldes. Tu tombes sur trois amies à toi, Charlotte, Marianne et Alice, qui sont allées en ville pour faire du shopping. Elles ont toutes acheté des nouvelles chaussures. Charlotte te dit qu'elle a acheté des Converse, Marianne des Nike. Tu te tournes vers Alice et lui demandes :

Et toi, tu as acheté des quoi ?

'It's the sales season. You run into three friends of yours, Charlotte, Marianne and Alice, who have gone into town to go shopping. They all bought a new pair of shoes. (Lit: 'They have all bought *DES* new shoes.') Charlotte tells you that she bought some Converse, Marianne that she bought some Nikes. (Lit: 'Charlotte says to you that she has bought *DES* Converse, Marianne *DES* Nikes.') You turn to Alice and ask her:

And what did YOU buy? (Lit: 'And you, you've bought *DES* what?')

Although all items in Condition B (Maximal Givenness) were designed to make the word *des* contextually salient (see Section 2.1), item 01 has a few properties that may have increased its contextual salience in comparison with the other items.

First, the concepts *des Converse* 'DES Converse' and *des Nike* 'DES Nikes' are very similar to each other. Their overarching category 'shoe brands' is very specific in comparison to for instance the overarching categories in items 05 and 15, which received relatively low median ratings. Item 05 mentions *des biscuits* 'DES biscuits' and *des fruits* 'DES fruits' as members of the overarching category *desserts* 'desserts'; item 15 contains *des personnages* 'DES characters' and *des lieux pour la trame de l'histoire* 'DES places where the story takes place' as members of the category *éléments de l'histoire* 'aspects of the story'. (The complete items can be found in Appendix E.) The similarity of the concepts *des Converse* 'DES Converse' and *des Nike* 'DES Nikes' in item 01 strengthens the sense of analogy as compared to these two items. This makes it even more salient

that the addressee in example (13) has also bought *DES* [a specific brand of shoes]. In other words, the specificity of the category ‘shoe brands’ in item 01 adds to the contextual salience of the indefinite article *des*. This may be a reason for the higher median rating of item 01 (3.8) compared to item 05 (1.6) and item 15 (1.4).

Second, shoes come in pairs, unlike desserts, aspects of the story and most other categories. The duality of *des Converse* ‘DES Converse’ and *des Nike* ‘DES Nikes’ makes the grammatical plural of *des* in *des quoi* ‘DES what’ contextually salient. This is a second aspect of item 01 that increases the contextual salience of the indefinite article.

In short, the only item in Condition B that received a relatively high rating had properties that made the indefinite article even more salient than in the other items. It is probably hard to make an indefinite article salient enough, i.e. so salient that the question really becomes Maximally Given. This is much easier in an echo question, where the indefinite article is mentioned in the previous utterance.

There may be a second factor that contributed to the low ratings in Condition B (Maximal Givenness). Differently from expectation, an online survey is in some sense less controlled than a discussion face to face. In an online survey, you do not know if a participant is distracted or whether she reads all trials carefully. An indication of the latter can be gained from the time that participants took to complete the survey. Table 4 displays the time it took respondents to rate the 15 items of the rating study, the 15 items of the other study and the 30 fillers, and to complete a list of demographic questions.

Table 4. Time taken to complete the survey

|         | DURATION        |
|---------|-----------------|
| Mean    | 19 min. 17 sec. |
| Minimum | 7 min. 22 sec.  |
| Maximum | 43 min. 5 sec.  |

It should also be kept in mind that the frequent mention of the indefinite article *des* was a crucial ingredient in making questions in Condition B Maximally Given. If a participant reads these contexts too fast and misses the indefinite article, there is not much difference left between the contexts in Conditions A and B. Some participants who completed the survey very fast may have missed the article.<sup>52</sup> If so, this may somewhat have reduced the average difference, even though the effect is still significant due to the more observant participants. Although the instructions urged participants to pay careful attention to the context, there was no specific task to enforce this.

In sum, *wh*-in-situ questions with *des quoi* ‘DES what’ are not generally very natural in a context designed to make them Maximally Given. However, they are significantly more natural in such a context than in an out of the blue context. This means that the type of context makes a difference. In addition, there was one item that was rated reasonably high, and this item had some properties that strengthened the contextual salience of the indefinite article.

Under the proposed analysis, the following interpretation would explain these results. Item 01 was probably the only item in which the indefinite article was salient enough for the participants to really make the question Maximally Given, i.e. including the indefinite article. (It would be interesting (but difficult) to do a similar rating study yet with all items modelled on item 01.) Under this interpretation, the results suggest that it is in principle possible to interpret a *wh*-in-situ question with *des quoi* ‘DES what’ via a choice function, while this is not possible via covert movement.<sup>53</sup> However, a choice function interpretation requires the

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<sup>52</sup> I was not able to show statistically that the difference between Conditions A and B was smaller for participants who completed the survey very fast.

<sup>53</sup> In the examples in Chapter 5, the choice functions selected an individual out of a set of individuals. If a question with *des quoi* ‘DES what’ is interpreted via a choice function, the choice function selects a set out of a set of sets. This requires a choice function that can take this type of argument (something that is not a set of individuals), like a generalised choice function, cf. Yanovich (2005). This is a choice function that is not just available for *wh*-DPs but also for other types of constituents. See also Section 6 of this chapter, where I suggest that echo questions are also interpreted via a choice function.

indefinite article *des* to be salient enough for the speaker. That is difficult without the indefinite article being present in the previous utterance, which would result in an echo question. In the absence of the right type of context, covert movement is the only option, resulting in an unacceptable sentence.

In conclusion, the interpretation of the data is not clear-cut, but the results can be considered as additional support for the existence of two types of *wh*-in-situ. In addition, the above results clearly show that echo questions are perfectly natural with *des quoi* 'DES what' in French, which has not (as far as I know) been demonstrated before. Finally, it should be kept in mind that the results were obtained in a sample with a restricted age range (age 20-34) and do not necessarily generalise to other population.

### 3 *Wh*-in-situ out of the blue: a rating study

The previous section compared *wh*-in-situ questions with *des quoi* 'DES what' in contexts that were designed to trigger choice function *wh*-in-situ to (a) covert movement *wh*-in-situ and (b) echo questions with the same form. I now return to the data variation described in Chapter 2. I focus specifically on *wh*-in-situ questions in an out of the blue context, which I suggest are interpreted via covert movement, and investigate several of their properties.

To recapitulate, Chapter 2 laid out the following, mostly controversial, properties of French *wh*-in-situ questions (17).

- (17) a. prosodic properties
- b. occurrence of intervention effects
- c. extra-strong presupposition
- d. infelicity as indirect questions
- e. (in)felicity inside a strong island
- f. (in)felicity as long-distance questions

The prosodic properties have been investigated in Chapter 4 and will be discussed again in Section 4.2 below. The occurrence of intervention effects has been examined in Chapter 5 and the extra-strong presupposition will be discussed in Section 4.1 below. In this section, I report on a rating study that investigated the felicity of *wh*-in-situ out of the blue in indirect questions, inside a strong island (specifically an adjunct island) and in long-distance questions ((G1b) in (6) above).

It seems possible that part of the data variation discussed in Chapter 2 is due to differences between age groups. I therefore investigated these issues for one particular age group, namely age 20 to 35.

Regarding indirect questions, I hypothesised that *wh*-in-situ is infelicitous in such questions. The literature discussed in Chapter 2 is fairly consistent on this point (see the references there), but an aim of the rating study is to confirm that this is also true of *wh*-in-situ in an out of the blue context. I also meant to set up a comparison for the other conditions, which are more controversial.

As for strong islands, I specifically targeted one particular type of island, namely the adjunct island. The purpose of the rating study was to investigate several properties of *wh*-in-situ in an out of the blue context, not to focus on its felicity inside different types of islands. I therefore selected one type and the adjunct island seemed the most suitable one. With complex DP islands it can be argued that the whole DP moves; with subject and coordination islands there may be more going on, which might complicate matters (see the literature review in Chapter 2). This is the first experimental study (to my knowledge) that investigates *wh*-in-situ inside a strong island; future research will have to establish whether these other strong islands behave in the same way as the adjunct island. My hypothesis based on informal discussions was that in an out of the blue context, *wh*-in-situ with an argument *wh*-phrase is reasonably acceptable inside an adjunct island.

With respect to long-distance questions, I hypothesised that *wh*-in-situ is acceptable in such questions in an out of the blue context. The literature on *wh*-in-situ in long-distance questions is divided (see Chapter 2), but in the only previous (yet unpublished) rating study to investigate this, participants did not rate long-distance questions with *wh*-in-situ any



lower than with *wh*-fronting (Tual 2017a). In an elicited production experiment that mainly investigated children's utterances, the adult control subjects also produced some long-distance *wh*-in-situ questions, but not many (see Chapter 2 for more details) (Oiry 2011). Chapter 2 also mentioned that several factors have been claimed to influence the acceptability of *wh*-in-situ in long-distance questions. Investigating these was however not the purpose of the rating study. In the current rating study, I included long-distance questions with two purposes. The first was to test the main hypothesis that *wh*-in-situ is acceptable in long-distance questions in French. This concerns the long-distance property of these questions. Secondly, the long-distance *wh*-in-situ questions would be uttered in an out of the blue context. If these questions were acceptable, it would confirm that French *wh*-in-situ is felicitous in such a context.

Consequently, I set up the following three conditions for covert movement *wh*-in-situ (18).

(18) *Conditions*

- A. Indirect question
- B. Adjunct island
- C. Long-distance question

In the next sections, I present the materials (3.1), analysis (3.2), results (3.3) and discussion of the results (3.4) of this rating study. The procedure and participants are the same as in the rating study discussed in Section 2; they are not repeated here.

### 3.1 Materials

The materials in all three conditions took the form of a description of the conversational setting, followed by the target sentence. An example is presented in (19).

(19) *Description of the conversational setting*

Tu es membre d'un club de tennis. Tu as joué un bon match et maintenant tu bois un verre avec ton partenaire de tennis. Avant de reprendre l'entraînement, vous discutez de ce que vous allez faire ce soir. Tu dis :

[target sentence]

'You're a member of a tennis club. You played a good game and now you're having a drink with your tennis partner. Before resuming the training, you are discussing your plans for tonight. You say:'

[target sentence]

The conversational setting described whom the speaker of the sentence was talking to and in what context. It always ended with an equivalent of 'you say (to him/her)' or 'you ask (him/her)' (followed by a ':'). The contexts were constructed to be natural and to indicate that the register was informal. They were written and checked by at least three native speakers of French.<sup>54</sup>

As the rating study was meant to investigate properties of *wh*-in-situ in an out of the blue context, which I suggested is interpreted via covert movement, it was important to exclude the possibility of employing a contextually licensed choice function. Several measures were taken to this end. First, the context did not mention any aspect of the content of the target question. Second, the questions were preceded by a topic change marker (Fraser 1999) like *tiens d'ailleurs* 'hey by the way', to signal a change in discourse topic. Third, I used a diagnostic for Maximal Givenness that I will lay out in more detail in Section 4.1: if the question is Maximally Given, a negative reply (e.g. *rien* 'nothing') is odd. Several native speakers of French confirmed that a negative reply to the items was natural.

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<sup>54</sup> See Section 2.1 for acknowledgements.

I now describe the properties of the items in each condition. In Condition A (indirect question), I took care to avoid a reading as a direct question. A diagnostic to differentiate between direct and indirect speech is ‘concordance of person’ (Speas 2000). Speas gives the following example of this for English (20).

(20) a. Indirect speech: concordance of person

*She<sub>i</sub>* says that *she<sub>i</sub>* will win.

b. Direct speech: person switch

*She<sub>i</sub>* says “*I<sub>i</sub>* will win”.

[Speas 2000: 4, ex. 5]

In both (20a) and (20b), the pronominal subject of the embedded clause refers back to a DP in the matrix clause (*she*). In indirect speech (20a), the pronominal subject of the embedded clause agrees in person with its antecedent (*she*), but in direct speech (20b) it does not (*I*). This works the same way in French. Hence, to avoid a reading as direct speech, I used sentences in which the pronominal subject of the embedded clause referred back to a DP in the matrix clause, with which it agreed in person. I used the first person for this, as in (21), which followed the context in (19) (there was no underlining in the actual study).

(21) *Indirect question (Condition A)*

Tiens d'ailleurs, ta copine m' a demandé  
hey by the way your girlfriend me has asked

j' ai préparé quoi pour le pique-nique.  
I have prepared what for the picnic

Intended: ‘Hey by the way, your girlfriend asked me  
what I prepared for the picnic.’

Not: ‘Hey by the way, your girlfriend asked me  
“what did I prepare for the picnic?”’

In addition to the first person pronoun *m(e)* ‘me’, the items in Condition A all contained a third person subject and the predicate *demander* ‘ask’ in the matrix clause. Besides the subject *j(e)* ‘I’, the embedded clause was always composed of a verb in the *passé composé* (past tense), the *wh*-phrase *quoi* ‘what’, which was the direct object of the embedded clause, and a PP.

Example (22) displays an item used in Condition B (adjunct island).

(22) *Adjunct island (Condition B)*

Tu es en train de prendre ton petit-déjeuner avec ton père. Comme tous les matins, il lit le journal. Tu bois ton café et tout d’un coup, tu lui demandes :

‘You’re having breakfast with your dad. Like every morning, he’s reading the newspaper. You’re drinking your coffee. Suddenly you ask him:’

Tiens je voulais te demander,  
hey I wanted you ask  
‘Hey I wanted to ask you,

il y a eu un scandale parce que Trump a dit quoi ?  
it there has been a scandal because Trump has said what  
for what x has there been a scandal because Trump said x?’

All items in this condition contained an adjunct island beginning with *parce que* ‘because’, which takes indicative mood in the embedded clause. The embedded clause always contained a *passé composé*. The *wh*-phrase *quoi* ‘what’ was the direct object of the embedded clause. I used non-D-linked *quoi* ‘what’, because if this could stay inside an island, it would not be due to D-linking.

An example of an item in Condition C (long-distance question) is displayed in (23).

(23) *Long-distance question (Condition C)*

Tu es assis dans le bus qui va jusqu'à l'université. Tu parles avec un ami qui suit les mêmes cours que toi. Il te parle de ses projets pour l'été. Soudain, tu lui dis :

'You're sitting on the bus to the university. You're talking to a friend, who is in the same program as you. He tells you about his plans for the summer. Suddenly you say:'

Sinon, je pense à ça,  
by the way I think of that  
'By the way, I'm just wondering,

tu crois que le prof a prévu quoi pour l'examen ?  
you believe that the teacher has planned what for the exam  
what do you think the teacher planned for the exam?'

In this condition, the subject of the matrix clause was always *tu* 'you' and the matrix verb was either *penser* 'think' or *croire* 'believe'. The subject of the embedded clause was a full DP, followed by a verb in the passé composé, the *wh*-phrase *quoi* 'what' and a PP. The *wh*-phrase was the direct object of the embedded clause. All items had the indicative mood and finite tense, because it has been suggested that long-distance *wh*-in-situ questions are only felicitous if they have the subjunctive mood (Mathieu 1999; 2002) or non-finite tense (Bošković 1998; Mathieu 1999).

There were fifteen items in each condition, yielding 45 items in total. These were intermingled with 75 fillers. 45 were the items of the rating study I reported in Section 2. As I mentioned there, the items of the two studies acted as fillers to each other. The other thirty fillers were declaratives. Half of these were declaratives that ought to be felicitous; the other half were comprehensible but infelicitous. Details about the declarative fillers are reported in Section 2.1. The items were presented in a Latin square design with three groups, as described in Section 2.2. The materials of the study can be found in Appendix F.

### 3.2 Analysis

I first ran a null model with the question's rating on the continuous 50-point scale (from 1.0 to 5.0) as the dependent variable and intercepts of items and participants as random factors. Adding condition as a fixed factor significantly improved the model's fit ( $p < 0.001$ ). Adding other fixed factors, like age, experimental group, time taken to complete the survey or sex did not improve the model. A model that also contained the slopes of either items or participants as random factors did not converge. The best model was therefore a linear mixed-effects model with the question's rating as the dependent variable, condition as a fixed factor and intercepts of items and participants as random factors. I ran this model using the *lmer* function of the *lme4* package (Bates et al. 2015) in R (R Core Team 2019). P-values were obtained using the package *lmerTest* (Kuznetsova et al. 2017). As inspection of the model showed that it suffered from outliers, I removed all outliers with a standard residual of more than 2.5 standard deviations from zero, which was 0.6% of the data (6 outliers). The analysis was run for each reference category (Indirect question, Adjunct island, Long-distance question) to obtain all relevant comparisons.

### 3.3 Results

The results showed that there were clear differences between each of the three conditions. All differences were highly significant, as is shown in Table 5.

Table 5. Results of a linear mixed-effects model for the rating of *wh*-in-situ questions in an out of the blue context

| COMPARISON                | $\beta$ | SE   | P       |
|---------------------------|---------|------|---------|
| Condition B – Condition A | 0.73    | 0.13 | < 0.001 |
| Condition C – Condition B | 0.92    | 0.13 | < 0.001 |
| Condition C – Condition A | 1.66    | 0.13 | < 0.001 |

Figure 5 displays the mean ratings.

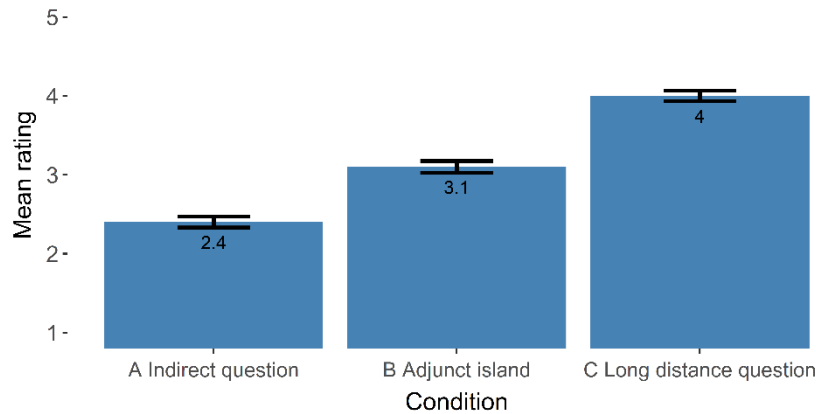


Figure 5. Mean rating of out of the blue *wh*-in-situ questions in the three conditions

The indirect questions were judged not to be very natural and clearly less natural than the questions in the other two conditions. However, a mean rating of 2.4 is not as low as might be expected based on the literature discussed in Chapter 2. Out of the blue *wh*-in-situ questions with an argument *wh*-phrase inside an adjunct island received intermediate judgments: a mean of 3.1 on a scale from 1.0 to 5.0. They were judged to be more natural than indirect questions, but less natural than long distance questions. With a mean rating of 4.0, the questions in Condition C were judged to be quite natural. Given that these items involved French *wh*-in-situ questions that were both long-distance questions and were uttered in an out of the blue context, this shows two things. First, *wh*-in-situ was found to be natural in long-distance questions with indicative mood and finite tense and second, French *wh*-in-situ questions were found to be natural in out of the blue contexts.

Table 6 displays the number of times that participants selected the ends of the scale in each condition, i.e. the ratings '1' and '5'. These numbers present the same pattern.<sup>55</sup>

<sup>55</sup> This table is meant to illustrate the broad pattern regarding the number of times that participants selected the ends of the scale. Exceptions to the overall pattern, such as the

Table 6. The number of times that questions received the ratings '1' and '5' in each condition<sup>56</sup>

| CONDITION                          | <i>N</i> | <i>N</i> RATING '1' | <i>N</i> RATING '5' |
|------------------------------------|----------|---------------------|---------------------|
| Condition A Indirect question      | 320      | 73                  | 13                  |
| Condition B Adjunct island         | 320      | 31                  | 39                  |
| Condition C Long-distance question | 320      | 7                   | 118                 |

The ratings displayed much variability in all three conditions. This is illustrated by the violin plots in Figure 6. The red area of the violin plots represents the distributional pattern of the ratings and the boxplot shows the median and interquartile range. (Recall that one rating does not correspond to one participant: a cluster of ratings may represent ratings by one or more participants.)

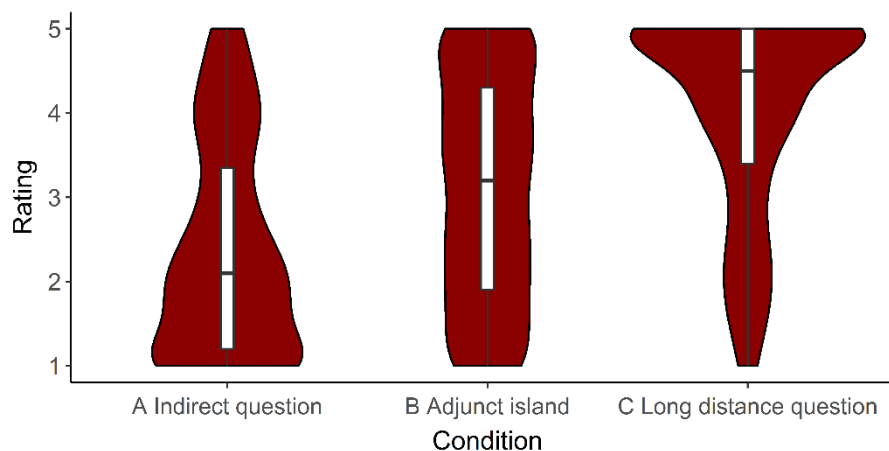


Figure 6. Violin plots of out of the blue *wh*-in-situ questions in the three conditions. The red area, as well as the boxplot in it, displays the distribution of the ratings.

even ratings of '1' for long-distance questions are not very meaningful, as these may also represent ratings during moments when a participant was less attentive.

<sup>56</sup> The number of targets in this table differs from the number in Table 3 in Section 2.5 ( $N=320$  vs.  $N=315$ ) because I had to exclude one participant in the rating study reported in Section 2, but not in this study.



This variability did not show any clear patterns. For instance, it was not the case that one group of participants accepted *wh*-in-situ questions with an argument *wh*-phrase inside an adjunct island, while another group did not. Rather, the judgments ‘1’ and ‘5’ shown in Table 6 for this condition were sometimes provided by the same participant. An analysis of the ratings of the different items did not provide any further insight either.<sup>57</sup> The overall picture is therefore one in which there are clear and significant differences between the conditions, with a great deal of variation in judgments.

### 3.4 Discussion of the results

I discuss the results elicited in each of the three conditions in turn.

Regarding Condition A, the literature review in Chapter 2 showed that *wh*-in-situ in indirect questions is generally regarded as infelicitous in French. For instance, in a study by Tual (2017a), such questions received a median rating of ‘-2’ on a 7-point scale ranging from ‘-3’ to ‘+3’ (see Chapter 2). The mean rating of 2.4 in the current study was therefore higher than expected. What could be the cause of that?

One might think that participants did not use the entire rating scale. That is however not the case, as evidenced by the declarative fillers. Recall that the rating study contained thirty declarative fillers, half of them felicitous and the other half infelicitous (see Section 2.1 for details). Their ratings are shown in Table 7.

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<sup>57</sup> My impression is that the variability is mostly due to noise: participants filled in the questionnaire very fast (see Section 3.4), read the sentences quickly and were not always consistent. Nevertheless, the overall pattern in the data is clear.

Table 7. Ratings of the declarative fillers

| DECLARATIVE FILLERS  | <i>N</i> | MEAN | <i>N</i> RATING '1' | <i>N</i> RATING '5' |
|----------------------|----------|------|---------------------|---------------------|
| Felicitous fillers   | 960      | 4.7  | 1                   | 671                 |
| Infelicitous fillers | 960      | 1.2  | 805                 | 20                  |

They show that the respondents made use of the entire scale.

A more likely cause for the mean rating of 2.4 is the fact that it was crucial to read the items carefully, with attention for detail. That was the case for this condition in particular. As explained above, a reading as an indirect question was enforced by concordance of person between the pronominal subject of the embedded clause and a DP in the matrix clause ((25) above). If a participant read the items in Condition A too fast and did not register the pronominal subject of the embedded clause, the target sentences could have been interpreted as direct speech. As I also discussed in Section 2, the mean duration of the survey shows that some participants read the items very fast. The average time it took to rate the 15 items of the rating study, the 15 items of the other study and the 30 fillers, and to complete a list of demographic questions was 19 minutes and 17 seconds. The mean rating of indirect questions might therefore have been boosted by participants who misread the items as direct questions. As not all of the 64 participants would have been sloppy in their reading, this resulted in the mean rating of 2.4. In the future, the study (and also the one in Section 2) might be repeated in a setting face to face with the researcher, who can then encourage careful reading.<sup>58</sup>

I now turn to the judgments regarding Condition B (adjunct island). These sentences received intermediate ratings (with much variability); how should this be interpreted? Recall that participants were asked to judge how 'natural' they found the target sentence, not how 'acceptable'. This is not quite the same. An informant told me that while she found the

<sup>58</sup> I don't have enough information about Tual's (2017a) items, nor about the time taken by participants to complete that study to make a comparison with my own experimental set-up.

target sentences with *parce que* ‘because’ acceptable, she would prefer to have two simpler sentences, like *Pourquoi il y a eu un scandale ?* ‘Why has there been a scandal?’ and *Trump a dit quoi ?* ‘What did Trump say?’. According to her, the target sentences were perfectly grammatical, but there were easier ways to express the same meaning, which she would prefer. The intermediate ratings might be a reflection of this. If so, the results in Condition B may suggest that the target sentences were to some extent felicitous, but not maximally natural, because there are other ways to express the same meaning which might be preferable.

Long-distance questions (Condition C) were judged to be quite natural in this rating task. This is in line with many previous studies (e.g. Obenauer 1994; Shlonsky 2012; Tual 2017a) and at the same time contradicts many other studies (e.g. Bošković 1998; 2000; Mathieu 1999; 2002). It is unclear to me why different studies have reached different conclusions in this respect. There may be an effect of age, since both this study and Tual (2017a) (who found similar results) targeted younger speakers. This could be indicative of a change in the language (see also Section 7), however, some older studies also report that *wh*-in-situ in long-distance questions is acceptable; see Chapter 2 for more discussion.

The results regarding long-distance questions (Condition C) contradict several specific claims in the literature. First, it has been suggested that *wh*-in-situ in long-distance questions is felicitous if the embedded clause is infinitival, but not otherwise (Boeckx 1999; Bošković 1998; Chang 1997; Mathieu 1999). This was not confirmed by the current study, in which the questions contained finite tense and received high ratings. Second, Mathieu (1999; 2002) has claimed that long-distance *wh*-in-situ must have subjunctive mood to be felicitous. The results obtained here contradict this for the population of the current study as well. The same is true of Baunaz’s (2005) assertion that long-distance *wh*-in-situ needs a ‘specific’ interpretation to be felicitous, which would not be compatible with an out of the blue context (see Chapter 5 for information about Baunaz’s specificity).

In conclusion, I interpret the results regarding *wh*-in-situ in an out of the blue context, in a population of age 20-35, as follows. First, indirect questions were not found to be very natural, although the ratings were

higher than expected based on the literature. Second, questions in which an argument *wh*-phrase was situated inside an adjunct island received intermediate ratings. They were not judged to be maximally natural but were not totally unnatural either. Third, long-distance questions with indicative mood and finite tense were judged to be quite natural, which allows for three conclusions regarding long-distance *wh*-in-situ. That is, I observed no restrictions on long-distance *wh*-in-situ in terms of a) indicative mood, b) finite tense and c) contextual restrictions. Finally, since the study showed that long-distance *wh*-in-situ was judged to be natural out of the blue, it also allows for the conclusion that French *wh*-in-situ is acceptable out of the blue. This latter result confirms that at least for a population of this age range, not all French *wh*-in-situ questions require Maximal Givenness.

#### 4 Explaining data variation

Section 2 investigated *wh*-in-situ questions containing *des quoi* 'DES what'. One of the findings was that such questions were rated differently in a context that was designed to make them Maximally Given from questions in an out of the blue context. The rating study presented in Section 3 confirmed that at least some speakers of French allow for *wh*-in-situ in an out of the blue context. With this as background, I return to some of the data variation described in Chapter 2. In that chapter, I noted a recurring pattern in the data, according to which some authors observed a particular property of French *wh*-in-situ questions, other authors contradicted this and yet other authors observed the property in a subset of the data. These properties were the presence of an extra-strong presupposition, the presence of a large sentence-final rise and the occurrence of intervention effects.

In this section, I set out to explain this data variation, suggesting that two factors are involved. First, I hypothesise that the two mechanisms to interpret *wh*-in-situ are not both available to all speakers. In particular, I suggest that the grammar of certain speakers contains a contextually

licensed choice function, but not covert movement to interpret *wh*-in-situ.<sup>59</sup> I will call a speaker who only has choice function *wh*-in-situ in her grammar a Type A speaker and a speaker who has both mechanisms to interpret *wh*-in-situ a Type B speaker. Second, as the use of a choice function is licensed by Maximal Givenness, a speaker must be able to construe the necessary context to employ a choice function. This can in particular be difficult for a sentence that contains an intervener. In turn, I discuss how the combination of these two factors accounts for the variation regarding the extra-strong presupposition (Section 4.1), the sentence-final rise (Section 4.2) and intervention effects (Section 4.3) ((G1c) in (6) above).

#### 4.1 Extra-strong presupposition

Recall from Chapter 2 that according to many authors, French *wh*-in-situ questions involve what is described as an ‘extra-strong existential presupposition’ (e.g. Chang 1997; Cheng & Rooryck 2000; Coveney 1989). For example, the *wh*-in-situ question in (24) is felicitous because speaker B already assumes that speaker A will be buying Pierre something.

- (24) A: C’ est l’ anniversaire de Pierre la semaine prochaine.  
 it is the birthday of Pierre the week next  
 ‘It’s Pierre’s birthday next week.’
- B: Et tu vas lui acheter quoi ?  
 and you will for.him buy what  
 ‘And what will you buy for him?’

[Cheng & Rooryck 2000: 24, note 3]

It is ‘strongly presupposed’ that there exists a value to fill the *wh*-phrase, because the speaker merely requests more detail about the present that speaker A will buy. This extra-strong presupposition may partly be based

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<sup>59</sup> It cannot be ruled out that there are also speakers who have covert movement *wh*-in-situ and no choice function *wh*-in-situ, i.e. a third type of grammar, yet the data provide no clear indication that this is the case.

on world knowledge, such as the knowledge that one usually buys a present when someone has their birthday. I pointed out in Chapter 2 that it was not clear what the conceptual status was of the extra strong presupposition or where it might come from.

However, in light of the proposal that Maximal Givenness licenses the use of a choice function, I suggest that the questions that were claimed to exhibit an extra-strong-presupposition involve choice function *wh*-in-situ and are Maximally Given. In (24), the context (in combination with world knowledge) can make salient for speaker B that speaker A is going to buy Pierre a present.<sup>60</sup> Speaker B asks for further specification of this present. The question can therefore be paraphrased using a definite description, as in (25).

(25) The present that you are going to buy for Pierre – what is it?

Consequently, the question in (24) can be interpreted as Maximally Given. I suggest that this is what gives the impression of an ‘extra strong existential presupposition’.

According to the advocates of the extra-strong-presupposition, a negative reply to a *wh*-in-situ question is odd (26), contrasting with a *wh*-fronted question (27).

|                                      |                 |
|--------------------------------------|-----------------|
| (26) Question: Marie a acheté quoi ? | Answer: ??Rien. |
| Marie has bought what                | nothing         |
| ‘What is it that Marie bought?’      | ‘Nothing.’      |

|  |               |
|--|---------------|
| (27) Question: Qu’ est-ce que Marie a acheté ? | Answer: Rien. |
| what is-it that Marie has bought               | nothing       |
| ‘What did Marie buy?’                          | ‘Nothing.’    |

[Chang 1997: 42, exs. 37 and 40]

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<sup>60</sup> I would say that the relevant CSM is ‘semi-salient’ in this example, i.e. also allows for an alternative interpretation (see Chapter 5).

This makes sense if (26) is Maximally Given. If it is salient for you that Marie bought something and you merely ask what it is, the reply that Marie bought nothing feels like an unexpected and not completely congruent answer. The fact that a negative reply is perceived as odd can therefore be used as a further diagnostic for Maximal Givenness.

As I mentioned above, while some authors observe an extra strong existential presupposition, other authors state that French *wh*-in-situ questions may be used out of the blue (e.g. Adli 2006; Hamlaoui 2011) and yet others suggest that only part of the French *wh*-in-situ questions exhibits an extra-strong presupposition (e.g. Baunaz 2011; Starke 2001). If certain speakers (Type A speakers) only have choice function *wh*-in-situ, while other speakers (Type B speakers) also have the covert movement option, these data can be accounted for. That is, a Type A speaker would observe that French *wh*-in-situ questions are always Maximally Given, giving the impression of an extra-strong presupposition (e.g. Chang 1997; Cheng & Rooryck 2000). Yet a Type B speaker would note that French *wh*-in-situ questions can be used out of the blue (e.g. Adli 2006; Hamlaoui 2011) or that only a subset of these questions impose a strong restriction on the context (e.g. Baunaz 2011; Starke 2001).<sup>61,62</sup>

Consequently, the existence of two different mechanisms to interpret *wh*-in-situ, in combination with the hypothesis that certain speakers only have of one of these (namely choice function *wh*-in-situ), explains the seemingly contradictory data regarding the extra-strong presupposition.

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<sup>61</sup> There is one author, Mathieu (2004), who states that French *wh*-in-situ questions are *not* felicitous when a context (i.e. “a situation and its participants” p. 57) has already been established. I have no explanation for this. I would not want to conclude from this that Mathieu is a third type of speaker who has covert movement *wh*-in-situ but no choice function *wh*-in-situ, cf. footnote 59, as the description of *wh*-in-situ in Mathieu (2002) sounds rather like Maximal Givenness.

<sup>62</sup> There is no reason why a *wh*-fronted question cannot be Maximally Given and hence give the impression of an extra-strong presupposition. Yet crucially, such a question does not have to be Maximally Given. For a Type B speaker, the same is true of French *wh*-in-situ questions, which are therefore (for these speakers) not presuppositionally different from a *wh*-fronted question.

The proposal also explains what causes the appearance of such a presupposition, which was not clear before.

## 4.2 Sentence-final rise

The proposal also sheds light on the disagreement regarding the sentence-final rise. As was discussed in Chapters 2 and 4, some authors claim that French *wh*-in-situ questions standardly exhibit a large sentence-final rise (e.g. Cheng & Rooryck 2000; Déprez et al. 2013). This has been opposed by other authors, who maintain that French *wh*-in-situ questions do not display such a rise (e.g. Mathieu 2002). Yet other authors suggests that a final rise is present in part of the cases (e.g. Adli 2004; 2006).

In the prosody experiment reported in Chapter 4, French *wh*-in-situ questions with a narrow focus on the *wh*-word were marked by a large sentence-final rise, while *wh*-in-situ questions with broad focus were not. Based on known correlates of focus marking in French, I analysed the large sentence-final rise as a correlate of narrow focus marking.<sup>63</sup> Now crucially, choice function *wh*-in-situ questions always have a narrow focus on the *wh*-word. This is a consequence of Maximal Givenness. For instance, in (24) above, speaker B's utterance has a narrow focus on *quoi* 'what', as *tu vas lui acheter* 'you will buy him' is contextually salient for the speaker (see Chapter 3 for more explanation about focus). Since choice function *wh*-in-situ questions always have a narrow focus on the *wh*-word, they are standardly marked by a large sentence-final rise.<sup>64</sup> Consequently,

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<sup>63</sup> The sentence-final rise of the narrow focus questions was a result of 'tone copying', the copying of the F<sub>0</sub> maximum (highest pitch) on the final syllable of the *wh*-phrase to the final syllable of the utterance. In other words, tone copying (in interrogatives) involves a high tone being copied to the end of the utterance. This phenomenon is a correlate of focus marking in French, also in declaratives and yes/no questions (see Chapter 4 for references).

<sup>64</sup> In fact, the narrow focus questions in the prosody experiment can be interpreted as Maximally Given. The contexts that were used to elicit these questions were modelled on an example by Engdahl (2006: 100, ex. 23), which is example (12) in Chapter 5. According to Engdahl, intervention effects are absent in such a context. To be precise, I described the CSM that would make Engdahl's question Maximally Given as 'semi-salient'



Type A speakers, who only have the choice function option, would observe that French *wh*-in-situ questions standardly display a large sentence-final rise.

In contrast, covert movement *wh*-in-situ questions may display different focus structures, depending on the context in which they occur. If they have a narrow focus on the *wh*-word, they are expected to display a large sentence-final rise. Yet, if they have broad focus, they are marked by a mostly falling contour. As I mentioned in Chapter 4, the sentence-final rise in such questions may be extremely small. Speakers with covert movement as well as choice function *wh*-in-situ (i.e. Type B speakers) would therefore not observe that all French *wh*-in-situ questions display a large sentence-final rise. Rather, they may note that a large sentence-final rise is optional (Adli 2004; 2006). They may even maintain that French *wh*-in-situ questions display a mostly falling contour (e.g. Mathieu 2002). Under the current analysis, this would suggest that they only investigated questions with broad focus.

In short, I suggest that the sentence-final rise is a correlate of narrow focus marking and choice function *wh*-in-situ questions always have a narrow focus on the *wh*-word, which is therefore marked by a large sentence-final rise. Yet covert movement *wh*-in-situ questions may display different focus structures, in which a large sentence-final rise may be absent. The data variation regarding the final rise is therefore explained by the presence of two different mechanisms to interpret *wh*-in-situ, in combination with the hypothesis that certain speakers (Type A speakers) only have the choice function option.

### 4.3 Back to intervention effects

In Chapter 5, I proposed that intervention effects arise when an intervener blocks covert movement. A context that licenses the use of a choice function can therefore void intervention effects. What does this predict with respect to the judgments of Type A and Type B speakers?

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(example (43) in Chapter 5), meaning that the question may be interpreted as Maximally Given but also leaves room for another interpretation.

Both Type A and Type B speakers can use a contextually licensed choice function to interpret *wh*-in-situ. This predicts that all speakers should be able to accept a French *wh*-in-situ question with an intervener, if the context makes the question Maximally Given. However, crucially, the speaker must be able to construe such a context.

I discussed in Chapter 5 that it is easier for some questions to construe a context that makes them Maximally Given than for others. Different aspects of the content of the sentence have an influence on how easy or difficult this is. For instance, I explained that in a sentence with an intervener, an intervener that imposes a very specific restriction on the context like *plus de cinq N* ‘more than five N’ makes it harder to envisage the necessary context than an intervener with a very general meaning like *plusieurs N* ‘several N’. I suggest that likewise, a context that makes the question Maximally Given is often less easily available for a sentence with an intervener (28a) than for one without an intervener (28b).

(28) a. *Plus de cinq étudiants se sont inscrits à quel cours ?*

‘For which course did more than five students register?’

b. *Sylvie s’est inscrit à quel cours ?*

‘For which course did Sylvie register?’

It is therefore possible that a Type A speaker accepts a particular *wh*-in-situ question without an intervener, but fails to accept it when an intervener is added, because she can no longer envisage the necessary context. A Type B speaker also has to use a choice function to interpret a sentence with an intervener, as covert movement results in intervention effects. Consequently, the prediction for speakers with both types of grammar is that they can accept a *wh*-in-situ question with an intervener, but only if the speaker is able to envisage the necessary context. A second prediction is that judgments of *wh*-in-situ questions with an intervener involve much variation. In addition to the variation already discussed in Chapter 5, variation among speakers is predicted, as some speakers will be better at construing the necessary context than others. This holds for speakers of both Type A and Type B.

As a summary of Section 4, Table 8 lists the predictions of the proposal regarding the properties of French *wh*-in-situ questions for Type A and Type B speakers.

Table 8. Predictions of the proposal regarding the properties of French *wh*-in-situ questions for Type A and Type B speakers

|                            | TYPE A SPEAKER<br>[ONLY CHOICE FUNCTION]                                      | TYPE B SPEAKER<br>[CHOICE FUNCTION +<br>COVERT MOVEMENT]  |
|----------------------------|---|---|
| Contextual restriction     | Appearance of an extra-strong presupposition (Maximal Givenness)              | a) Observes that <i>wh</i> -in-situ questions may occur out of the blue <b>or</b><br>b) Observes an extra-strong presupposition in a subset of the data |
| Large sentence-final rise  | Standardly present (due to narrow focus)                                      | Depends on the focus structure; present in a subset of the data. (Observes no large rise when examining only broad focus questions.)                    |
| Acceptable with intervener | If the speaker can construe a context that makes the question Maximally Given | If the speaker can construe a context that makes the question Maximally Given   |

This concludes the part of the chapter that focuses exclusively on French. Based on the intervention effects data, Chapter 5 put forth the proposal that French has two mechanisms to interpret *wh*-in-situ questions. The current chapter extends this proposal in two ways. The preceding sections described several of the properties of questions interpreted via these mechanisms and suggested that some speakers (Type A speakers) only have choice function *wh*-in-situ. In the next two sections, I take a cross-linguistic perspective. I aim to show that the choice

function account is also a promising direction of research for contextually restricted *wh*-in-situ in *wh*-fronting languages like English and German ((G<sub>3</sub>) in (6) above). In the next section, I explore to what extent the properties of *wh*-in-situ in English and German resemble those of French choice function *wh*-in-situ (G<sub>3a</sub>). Section 6 compares the properties *wh*-in-situ in English and German to those of echo questions (G<sub>3b</sub>).

## 5 *Wh*-in-situ in English and German

Certain *wh*-fronting languages, like English and German, also allow a restricted use of *wh*-in-situ (i.e. other than in echo questions). This *wh*-in-situ is only acceptable in a specific set of contexts, i.e., it is contextually restricted. In what follows, I explore to what extent this *wh*-in-situ can also be explained by the choice function account proposed for French, which would derive the contextual restriction from a contextually supplied choice function. I limit the discussion to English and German, which according to Poschmann (2015) have very similar properties in this respect, but there are data that at first sight appear similar in Spanish (Biezma 2018; Jiménez 1997), (Brazilian) Portuguese (Pires & Taylor 2009) and Modern Greek (Roussou et al. 2014). I first investigate to what extent the contextual restriction of *wh*-in-situ in English and German can be analysed as Maximal Givenness (Section 5.1). Then I show that this *wh*-in-situ shares certain other (related) properties with choice function *wh*-in-situ in French (Section 5.2).

### 5.1 Maximal Givenness

It has long been known that *wh*-in-situ questions also occur in *wh*-fronting languages like English (Bolinger 1978; Kuno & Robinson 1972; Postal 1972). The most well-known types of examples are quiz questions as in (29) and courtroom interrogations as in (30).

(29) And now for \$5,000, London is the capital of WHICH country?

[Cooper 1983: 148, ex. ii]

(30) You were informed of the fact on WHAT day?

[Bartels 1997: 310, ex. 25, who cites Carlson 1975]

Other ‘categories’ of contexts for *wh*-in-situ that are mentioned in the literature are classroom contexts (31) and contexts in which one asks to be reminded of something (‘reminder questions’) (32) (Poschmann 2015; Reis 1992; 2012).

(31) Und wenn ihr unsicher seid, dann lest ihr WO nach, Kinder?  
 ‘And if you are not sure, then you look it up WHERE, kids?’

[Reis 2012: 8, ex. 16b]

(32) Elena zu Annika: Ich muss morgen um 15.30 gehen.  
 Annika: Gut, dann versuchen wir uns vorher zu treffen.  
 Am nächsten Tag kommt Annika ins Büro und fragt:

(Entschuldige,) Du gehst WANN (nochmal)?

‘Elena to Annika: I need to leave at 3:30 pm tomorrow.  
 Annika: All right, then we’ll try to meet each other beforehand.  
 The next day, Annika comes into the office and asks:

(Sorry,) you’re leaving WHEN (again)?’

[Poschmann 2015: 226, ex. 28]

However, *wh*-in-situ questions in English and German are used much more widely than this (Bobaljik & Wurmbrand 2015; Bolinger 1978; Ginzburg & Sag 2000; Pires & Taylor 2009; Poschmann 2015). They can be used to ask for further detail about an event (33), to follow up on a kind of enumeration (34) and in the absence of any linguistic context (35), (36). They may also have “a sarcastic or disdainful edge to them” (Bobaljik & Wurmbrand 2015: 16), as in (37).

(33) A: Well, anyway, I'm leaving.

B: OK, so you'll be leaving WHEN exactly?

[Ginzburg & Sag 2000: 280, ex. 63a]

(34) A: I'm going to send the sourdough bread to the Southern Bakery,  
and the croissants to Barringers.

B: I see, and the bagels you're going to send WHERE?

[Ginzburg & Sag 2000: 280, ex. 65]

(35) Major, you want this stuff WHERE?

[Bobaljik & Wurmbrand 2015: 14, ex. 2b]

(36) B sees his friend reading something.

B: You're reading WHAT?

[Pires & Taylor 2007: 4, ex. 9ab]

(37) A: They're planning to buy a new house.

B: And they're going to pay for it with WHAT, love and hope?

[Bolinger 1978: 131, ex. 260]

There have been some attempts to characterize the contexts that license *wh*-in-situ questions in English and German. I summarise the four proposals known to me, which are similar in the intuition behind them (see also Biezma (2018), who discusses Spanish).

First, Reis suggests that for *wh*-in-situ in English and German to be felicitous, either the speaker or the interlocutor is obliged (or under a strong expectation) to know the answer to the question (Beck & Reis 2018; Reis 1992; 2012). The answer to certain types of examples is known to the speaker, as in quiz questions (29) and questions in a classroom context (31). The answer to other types of examples is known to the interlocutor, as in reminder questions (32) and questions asking for further detail about an event (33). This does seem to describe the data, but it treats the examples as belonging to more than one category, i.e., it is not a generic description of the data.

Second, Pires and Taylor propose that when *wh*-in-situ questions in English and (Brazilian) Portuguese are felicitous, “the set of possible answers to them is part of the Common Ground” (Pires & Taylor 2009: 5). Common Ground involves the presumed background information and beliefs that are taken for granted and shared by the interlocutors (Stalnaker 1978). This Common Ground requirement seems too weak, because shared beliefs can be unrelated to the discourse context (see Section 1.4.1 of Chapter 3 for discussion). If I have a conversation with a friend who likes to read, it can be a shared background belief that she is reading something, whatever the (non-linguistic) utterance context. Yet in (36), the context makes *salient* for speaker B that his friend is reading something, because he sees his friend doing it. Similarly, one does not ask *you’re going to send the bagels WHERE?* (cf. (34)) if the interlocutors know that the addressee will send the bagels somewhere but this fact is not salient in the (non-linguistic) utterance context. In (34), this is made salient by the enumeration involving the other types of bread that get sent to a particular place.

Third, Ginzburg and Sag (2000: 281) remark that the factor that licenses *wh*-in-situ in English “is more closely related to the salience of the question at hand, i.e. the fact that this question has already been introduced or at least accommodated into the context”. For instance, in (37), speaker A’s utterance establishes the buying of a house as a fact of the discourse context. It can easily be accommodated that the house must be paid for with something. Ginzburg and Sag suggest that the fact that this is salient in the discourse is what licenses the *wh*-in-situ question. Ginzburg and Sag do not work out the contextual licensing condition in much detail, but these comments go in the same direction as my proposal regarding Maximal Givenness of choice function *wh*-in-situ in French.

The fourth account, that of Poschmann (2015: 131), comes even closer to Maximal Givenness. She suggests that *wh*-in-situ questions in English and German are licensed if they are entirely GIVEN in the context in the sense of Schwarzschild (1999). Recall that when a question is Maximally Given, it is entirely given in the sense of Büring (2016). Schwarzschild’s (1999) GIVENness and Büring’s givenness are however not the same.

Schwarzschild's (1999) GIVENness takes into account what is focused. A constituent is GIVEN if, abstracting away from the focus, the meaning of the constituent is entailed by a salient antecedent. In (32), here repeated as (38), the focus is the *wh*-phrase *wann* 'when'.

- (38) Elena zu Annika: Ich muss morgen um 15.30 gehen.  
Annika: Gut, dann versuchen wir uns vorher zu treffen.  
Am nächsten Tag kommt Annika ins Büro und fragt:

(Entschuldige,) Du gehst WANN (nochmal)?

'Elena to Annika: I need to leave at 3:30 pm tomorrow.  
Annika: All right, then we'll try to meet each other beforehand.  
The next day, Annika comes into the office and asks:

(Sorry,) you're leaving WHEN (again)?

[Poschmann 2015: 226, ex. 28]

Replacement of the focus by a variable (*Du gehst x* 'you're leaving x'), followed by binding by an existential operator, yields (39).

- (39)  $\exists x$ . [Du gehst x]  
' $\exists x$ . [you're leaving x]'

The question in (38) counts as GIVEN according to Schwarzschild (1999) if there is a salient antecedent that entails (39). In (38), this must be something like (40).

- (40) Salient antecedent: 'You are leaving at a specific time.'

According to Poschmann (2015), (38) is licensed if a contextually salient antecedent such as (40) entails (39), which is the case.

The problem with Poschmann's account is that 'entirely GIVEN in the sense of Schwarzschild (1999)' cannot be distinguished from narrow focus, because GIVENness takes into account what is focused. However, a



narrow focus on the *wh*-phrase is not enough to license *wh*-in-situ. Native speakers I consulted report that while (41a) is acceptable, (41b) is not.

(41) A: I bought my tickets for the festival yesterday.

- B: a. Oh, that's nice! [WHEN]<sub>F</sub> did you buy them? When I tried, they were sold out.  
 b. #Oh, that's nice! You bought them [WHEN]<sub>F</sub>? When I tried, they were sold out.

However, Poschmann's account predicts (41b) to be acceptable, since there is a salient antecedent that entails (42).

(42)  $\exists x$ . [you bought them (at) x]

This shows that Poschmann's generalisation is too weak.

I will now investigate to what extent Maximal Givenness, the contextual licensing condition for French choice function *wh*-in-situ, can account for the contextual restriction as manifested in the English and German examples above.

In (38), the question can indeed be interpreted as Maximally Given. Elena told Annika the previous day what time she would be leaving, but Annika forgot. It is therefore salient for Annika that there is a specific referent for the *wh*-phrase, i.e. a time at which Elena is leaving; Annika would just like to be reminded of what this time is. Hence, the question in (38) can be paraphrased using a definite description corresponding to the contextually given referent, as in (43). This shows that the question in (38) is Maximally Given.

(43) The time at which you are leaving – what is it (again)?

I now turn to (41), in which *wh*-in-situ is infelicitous. For the question in (41) to be Maximally Given, the context must make salient the existence of a specific time at which the addressee bought the tickets for the festival yesterday. This would make (44) a paraphrase of the question.

- (44) The time at which you bought your tickets for the festival –  
what is it?

However, while the context in (41) mentions that the addressee bought the tickets for the festival yesterday, it does not make salient a specific time at which this happened. (44) is therefore not a paraphrase of the question in (41). This shows that the *wh*-in-situ question in (41) is not Maximally Given, which, in contrast to Poschmann's account, correctly predicts its unacceptability.

The reason why Maximal Givenness and Poschmann's account yield different results here is that Poschmann's 'entirely GIVEN in the sense of Schwarzschild (1999)' cannot be distinguished from narrow focus on the *wh*-phrase, while Maximal Givenness is more specific than that. For a question to be Maximally Given, it must be contextually salient for the speaker that there is a specific referent for the *wh*-phrase. The *wh*-in-situ question merely requests further information about this known referent. This explains why in contexts without such a known referent like (41), *wh*-in-situ is not licensed.

Moving on to the question in (34), this question is apparently licensed by the preceding enumeration. When speaker B hears about two types of bread that get sent to two different places, this can make salient for him that for the third type of bread, there is also a specific place to which it will be sent. This place is the referent for the *wh*-phrase; the question asks for further information about it, namely what this place is. The question can therefore be paraphrased using a definite description corresponding to the referent, as in (45).

- (45) The place where you're going to send the bagels – what is it?

Consequently, Maximal Givenness can also account for why the context licenses *wh*-in-situ in this example.

I will now examine whether it can also account for (35). This example is trickier in that the question is apparently licensed by non-linguistic context. (The actual context is not reported in Bobaljik & Wurmbrand (2015), from where I took the example.) Yet recall that under the proposal

for French choice function *wh*-in-situ, non-linguistic context can also make the relevant meaning salient (see Chapter 3 for discussion). In (35), the non-linguistic context we don't know seems to make salient for the speaker that there is a specific place where the major wants the stuff. This place is the referent for the *wh*-phrase and the question merely requests further information about it. The paraphrase using a definite description in (46) is therefore a good rendition of the interpretation of the question.

(46) The place where you want the stuff – what is it?

Consequently, the question in (35) may also be regarded as Maximally Given. This is however less straightforward than in earlier cases, as no context is given for the original example.

I will now extend the proposal to test how far Maximal Givenness gets me in accounting for the disdainful tone of the example in (37), repeated here as (47).

(47) A: They're planning to buy a new house.

B: And they're going to pay for it with WHAT, love and hope?

[Bolinger 1978: 131, ex. 260]

In (47), the speakers seem to know that love and hope is all *they* have to pay the house with. The CSM in this example is that there is a specific thing that *they* imagine they will pay the house with, which is love and hope. That is, *love and hope* is the proposed answer to the question. The question might therefore be paraphrased using a definite description as in (48).

(48) The thing they imagine they can buy a house with  
– what is it? Love and hope?

As it is clear that love and hope does not buy houses, this question has a sarcastic edge to it. Under this analysis, the question in (47) could be considered to be Maximally Given.

Finally, consider the routine of a courtroom interrogation (cf. (30) above) or a police investigation. A purpose of a courtroom interrogation or police investigation is to establish the details surrounding an event, e.g. a crime. An investigator routinely has to know certain facts: did the event indeed take place, when exactly and where did it take place, where were all relevant people at that time etc. I suggest that an investigator whose job it is to establish such facts, relatively easily perceives the relevant meanings as contextually salient. The example in (49) comes from the British detective series ‘Scott & Bailey’ (series 3, episode 3).

(49) As part of a murder investigation, a detective is conducting an interview with the son of the murdered man. She asks him:

Going back, the last time you spoke to your dad was WHEN?

In this interview, there has been no previous mention of the last conversation between father and son. Yet it seems that the context of having to establish the facts surrounding the murder makes salient for the detective that there is a specific time at which the son last spoke to his dad, which is evidenced by the definite article *the*. The *wh*-in-situ question requests further information about this referent for the *wh*-phrase, namely when this last time was. The question can also be paraphrased as in (50).

(50) Your last conversation with your dad – when was it?

Consequently, the question in (49) is Maximally Given. This predicts that *wh*-in-situ is licensed relatively easily in settings in which one has to establish the details surrounding a specific event like a crime, which may be why courtroom interrogations are among the first known contexts for *wh*-in-situ in English (Postal 1972).

All in all, while this section leaves various issues to be worked out and established further by future research, Maximal Givenness goes a long way towards accounting for the English and German examples presented here. It is also in accordance with the intuition behind the existing

proposals. If the contextual restriction in English and German *wh*-in-situ can indeed be analysed as Maximal Givenness, this would suggest that the contextually supplied choice function I proposed for French choice function *wh*-in-situ is also present in contextually restricted cases of *wh*-in-situ in English and German. This would explain why the *wh*-phrase remains in-situ in these questions.

## 5.2 Other (related) similarities

In addition to a contextual restriction, *wh*-in-situ in English and German has some other (related) properties in common with choice function *wh*-in-situ in French. In this section, I examine these other shared properties.

Obviously, as in French, the *wh*-phrase in the English and German questions remains in-situ.

Moreover, like French choice function *wh*-in-situ, the English and German in-situ *wh*-questions do not display intervention effects (Pires & Taylor 2009; Poschmann 2015). This is illustrated in (51) and (52), which respectively contain *nur* ‘only’ and ‘not’. Of course, the question must be given including the intervener, i.e. Maximally Given (like in French, see Chapter 5).

(51) A: Wir haben die Texte untereinander aufgeteilt.

Jeder liest nur einen Text und stellt ihn dann den anderen vor.  
Thomas liest nur Karttunen, Annika nur Groenendijk.

‘We have distributed the texts amongst us.

Each of us reads only one text and then presents it to the others.  
Thomas reads only Karttunen, Annika only Groenendijk.’

B: Und Du liest *nur* WAS?  
and you read only what  
‘And you read only WHAT?’

[Poschmann 2015: 131, ex. 69, glosses]

(52) A: There are several things that Anna and Paul do not eat  
when we go out to dinner.

B: I know that Anna doesn't eat fish.  
And Paul, he *doesn't* eat WHAT?

[Pires & Taylor 2007: 11, ex. 27]

In addition, to the extent that the English and German *wh*-in-situ questions can be analysed as Maximally Given, they display a non-standard interpretation, like French choice function *wh*-in-situ. I already mentioned that a question like in (34), repeated here as (53) can be paraphrased as in (45), repeated as (54a); I have been using this as a convenient way to establish Maximal Givenness.

(53) A: I'm going to send the sourdough bread to the Southern Bakery,  
and the croissants to Barringers.

B: I see, and the bagels you're going to send WHERE?

[Ginzburg & Sag 2000: 280, ex. 65]

The interpretation of the question in (53), as brought out by the paraphrase in (54a), is different from the meaning of a regular *wh*-question, as in (54b).

(54) a. The place where you're going to send the bagels – what is it?  
b. Where are you going to send the bagels?

A regular *wh*-question denotes a set of propositions (Hamblin 1973). In the case of (54b), these take the form 'you are going to send the bagels to Barringers', 'you are going to send the bagels to Better Bread', 'you are going to send the bagels to the Bread shop', etc. The question in (54b) asks what proposition in this set is true. In contrast, as with French choice function *wh*-in-situ, the referent for the *wh*-phrase in (53) is fixed. I suggested in Section 5 of Chapter 5 that this type of meaning corresponds to that of a singleton-set of propositions, i.e. a set with only one proposition without alternatives, and analysed the lack of alternatives as a result of the presence of a choice function.

The accentuation pattern of *wh*-in-situ questions in English and German is also in line with Maximal Givenness. The prosody of these questions differs from that of *wh*-fronted questions with narrow focus on the *wh*-phrase (Beck & Reis 2018; Poschmann 2015; Reis 1992; 2012). In *wh*-fronted questions with narrow focus on the *wh*-phrase, the focal accent falls on the syllable bearing lexical stress, as in (55a) with the accent on *SUB*. Yet in *wh*-in-situ questions, the focal accent must fall on the *wh*-part *which*, as in (55b), and the rest of the sentence must be deaccented.<sup>65</sup>

- (55) a. [Oh, Tom is a teacher.] Which SUBject does he teach?  
 b. Tom teaches WHICH subject / \*which SUBject?

[Beck & Reis 2018: 371-372, ex. 3e and 4e]

This seems to prosodically mark a difference discussed in the previous section, i.e. that between narrow focus on the *wh*-phrase (55a) and Maximal Givenness (55b).<sup>66</sup> When a question is Maximally Given, the focus is only on the *wh*-word, excluding the restriction. The restriction is given and in English and German, givenness is marked by deaccentuation (see Chapter 3). The accentuation pattern described above is therefore predicted by Maximal Givenness. In French, post-focal givenness is less consistently marked than in the Germanic languages (Féry 2014), as was discussed in Chapter 4. Also, post-focal givenness marking, if present, seems to be most common in complete phonological phrases (and a restriction is not a complete phonological phrase) (Destruel & Féry 2015; Féry 2014; Hamlaoui et al. 2012). The difference between a focus on the *wh*-word and a focus on the *wh*-phrase may therefore not be marked in French. Indeed, I observed no givenness compression of the restriction in the prosody experiment in Chapter 4. While I did not discuss it in that chapter, the questions with a narrow focus on the *wh*-word were Maximally Given, or at least allowed for this interpretation (cf. ‘semi-

<sup>65</sup> Also, in polysyllabic *wh*-phrases in German, the accent must fall on the ‘*wh*-part’ of the polysyllabic *wh*-word, e.g. on *WA* in *warum* ‘why’, unlike in *wh*-fronted questions.

<sup>66</sup> Poschmann’s (2015) proposal also means to account for the deaccentuation, but as I explained, it does not make the distinction with narrow focus.

salient' in Chapter 5). Yet they showed no givenness compression of the restriction. This suggests that Maximal Givenness is prosodically marked in English and German, but apparently not in French, due to independent prosodic properties of the languages.

Finally, *wh*-in-situ in English and German is infelicitous in indirect questions (Bobaljik & Wurmbrand 2015).<sup>67</sup> Example (56) can be compared with (35) above. In (57), the *wh*-in-situ question in (57a) contrasts with the *wh*-fronted question in (57b).

(56) \*I wonder I should put this stuff WHERE.

Intended: 'I wonder where I should put this stuff.'

(57) a. \*Stark hat gefragt diese Teilhaber erreichen wir WIE?

Stark has asked these partners reach we how

b. Stark hat gefragt WIE wir diese Teilhaber erreichen.

Stark has asked how we these partners reach

'Stark asked how we can reach these partners.'

[Bobaljik & Wurmbrand 2015: 17, ex. 8b and 9]

As discussed in Chapter 2 (and confirmed for covert movement *wh*-in-situ in Section 3 above), *wh*-in-situ is also infelicitous in indirect questions in French. Although there is no separate evidence that choice function *wh*-in-situ is unacceptable, there are no indications that it differs from covert movement *wh*-in-situ in this respect, since the literature on *wh*-in-situ in indirect questions does not report much data variation (see Chapter 2).

To summarise Section 5, I explored to what extent the properties of *wh*-in-situ in English and German resemble those of French choice function *wh*-in-situ. I noted that while the contextual restriction in English and German *wh*-in-situ requires further research, Maximal Givenness goes a long way towards analysing the relevant examples. This analysis is also in accordance with the intuitions behind previous

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<sup>67</sup> Bobaljik & Wurmbrand (2015) suggest that *wh*-in-situ questions in *wh*-fronting languages are unacceptable cross-linguistically.



proposals. English and German *wh*-in-situ questions share several other (related) properties with French choice function *wh*-in-situ as well. The relevant features of English and German *wh*-in-situ are listed in Table 9. Of the features in this table, only the prosodic feature differs from choice function *wh*-in-situ in French, which seems due to independent prosodic properties of the languages.

Table 9. Properties of *wh*-in-situ in English and German

| ENGLISH/GERMAN <i>WH</i> -IN-SITU                         |
|---|
| <i>wh</i> -phrase remains in-situ                         |
| Maximal Givenness (requires further research)             |
| non-standard interpretation                               |
| givenness deaccentuation of the restriction <sup>68</sup> |
| no intervention effects                                   |
| infelicitous in indirect questions                        |

Based on the above, the choice function account proposed in Chapter 5 seems like a promising direction of research for contextually restricted *wh*-in-situ in English and German.

In the next section, I compare *wh*-in-situ in English and German to echo questions. In Section 7 of Chapter 5, I showed that the type of context that licenses the use of an echo question is such that echo questions are always Maximally Given. This means that the context in which an echo question is uttered always licenses the use of a choice function.

<sup>68</sup> More precisely: givenness deaccentuation of everything but the *wh*-part of the *wh*-word, including for instance the syllable *rum* in a German polysyllabic *wh*-word like *warum* ‘why’.

## 6 Comparison with echo questions

Echo questions and non-echoic *wh*-in-situ questions in English and German share many characteristics, yet still differ in other respects. In this section, I first list the similarities between the two question types, before turning to the differences.

Obviously, both types of questions are *wh*-in-situ questions in two otherwise *wh*-fronting languages.

Furthermore, echo questions have a non-standard interpretation that is consistent with the denotation of a singleton-set of propositions, even more clearly so than non-echoic *wh*-in-situ questions. In the echo question in (58), speaker B's perception is that speaker A said that John bought a specific thing – speaker B just did not hear what this thing was.

(58) A: John bought #####<sub>[noise]</sub>.

B: John bought WHAT? (I did not hear you.)

The referent for the *wh*-phrase in (58) is fixed. Parallel to (54a) above, the question can therefore be paraphrased as in (59) (see also Section 2.3 of Chapter 3).

(59) The thing of which you said that John bought it – what is it?

Whatever the answer to the echo question is, it refers to the part of speaker A's utterance that speaker B did not hear. As I suggested in Chapter 5 for French choice function *wh*-in-situ, the denotation of the echo question is therefore not a set of alternative propositions, but a singleton-set containing one proposition (see Section 5 of Chapter 5 for more detail). In the case of an echo question, this proposition expresses the content of the preceding utterance.

Moreover, while I already demonstrated in Chapter 5 that echo questions are always Maximally Given, this is not just a consequence of the echoing character: it is a licensing requirement. For instance, while the echo question in (60a) is acceptable, the same question in (60b) is not.

- (60) a. A: The US president is in town.  
       B: The WHO is in town?
- b. A: Obama/Michelle's husband is in town.  
       B: #The WHO is in town?

[Beck & Reis 2018: 380, ex. 23c]

This must be because (60a), but not (60b) makes the question Maximally Given including the definite article.

The fact that echo questions are licensed by Maximal Givenness is also illustrated by their possible clause-type characteristics. As is shown in (61) and (62), echo questions can echo other types of utterances than declarative sentences (Artstein 2002; Sobin 1990; 2010).

- (61) A: What did Dracula drink at Mary's party?  
       B: What did WHO drink at Mary's party?

- (62) A: Did Mary have tea with Cleopatra?  
       B: Did Mary have tea with WHO?

[Sobin 2010: 132, exs. 3ab and 4ab]

Sobin (2010) claims that echo questions must 'copy' the clause-type characteristics of the previous utterance, like the *wh*-phrase in (61) and the inversion in (62). He points to the contrast between (61) and (62) on the one hand and (63) and (64) on the other.

- (63) A: Did Mary have tea with Cleopatra?  
       B: \*Mary had tea with WHO?

[Sobin 2010: 132, ex. 3ad]

- (64) A: What did Dracula drink at Mary's party?  
       B: \*Did who drink what at Mary's party?

[Sobin 2010: 143, ex. 38ad]

However, I would like to propose that the problem with (63) and (64) is that the previous utterances do not make them Maximally Given. An echo question *can* have different clause type characteristics than the preceding utterance, if it is Maximally Given (65) (see also Beck & Reis 2018).

- (65) a. A: Call the pope immediately!  
       B: I'm supposed to call WHO?
- b. A: Could Paul be schizophrenic after all?  
       B: You think Paul is WHAT?

[Beck & Reis 2018: 376, ex. 16ab]

(66) shows that (65a) is Maximally Given by providing a paraphrase using a definite description. This definite description adequately reflects what is made salient by speaker A's utterance, i.e., it corresponds to a contextually given referent.

- (66) The person of whom you said that I'm supposed to call him  
       – who is it?

That is, it is salient for speaker B in (65a) that speaker A said that he (speaker B) is supposed to call someone. However, a paraphrase using a definite description of the echo question in (63), as in (67), does not adequately reflect what the context makes salient, i.e. it does not correspond to a contextually given referent.

- (67) The person of whom you said that Mary had tea with him – who is it?

The context in (63) does not make salient that speaker A said that Mary had tea with a person. Consequently, the question in (63) is not Maximally Given in this context. I suggest that this is why it is infelicitous, rather than because it must copy the clause-type characteristics of the previous utterance. All of this shows that echo questions are licensed by Maximal Givenness, even more clearly so than non-echoic *wh*-in-situ questions.

In line with Maximal Givenness, the focal accent in echo questions in English and German must fall on the *wh*-word rather than on the restriction, while the rest of the sentence is deaccented (Beck & Reis 2018; Poschmann 2015; Reis 1992; 2012). I demonstrated this above for non-echoic *wh*-in-situ questions (55).

In addition, echo questions also do not display intervention effects (68), cf. Chapter 5 for French (Beck & Reis 2018; Poschmann 2015; Reis 2012).

(68) Sabine: Nur Peter hat ein Motorrad gekauft.  
'Only Peter has bought a motorcycle.'

Thomas: Nur Peter hat WAS gekauft?  
'Only Peter has bought WHAT?'

[Poschmann 2015: 145, ex. 1]

Finally, like non-echoic *wh*-in-situ questions, echo questions with one *wh*-phrase are infelicitous as indirect questions (69) (Ginzburg & Sag 2000; Sobin 2010).<sup>69</sup>

(69) a. \*We wondered [Dana saw WHAT]. (echo)  
b. We wondered [what Dana saw]. (information seeking)

[Ginzburg & Sag 2000: 271, ex. 40a]

Despite of all these similarities between echo questions and non-echoic *wh*-in-situ questions, the two classes of questions are distinct.

First, unlike non-echoic *wh*-in-situ questions, echo questions have a reprise function, cf. the 'echoing' character (see also Chapter 3). Echo questions raise a question regarding an aspect of the previous utterance,

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<sup>69</sup> The reason why a question like (69a) is infelicitous may be that the preceding utterance that would license it is ungrammatical (i).

(i) \*We wondered Dana saw #####[noise].

Echo questions with multiple *wh*-phrases in which one of them has moved to Spec CP are acceptable as indirect questions. In that case, there is something that satisfies the question selection of the verb.

which is reflected in the paraphrases above (*the thing of which you said that... – what/who is it?*).

The second difference is that the non-standard form (e.g. *a what*) that I discussed in Section 2 above for French is widely available in echo questions. Not only can the *wh*-phrase take the position of an NP as in the rating study with *des quoi* 'DES quoi', in Bolinger's (1987: 263) words, the *wh*-phrase 'can do service for almost anything' (70). Nevertheless, it still has to respect constituent structure (Artstein 2002, citing McCawley 1987).

(70) A: The dog wanted to eat the book.

- B: a. The dog wanted to eat the WHAT?  
 b. The dog wanted to eat WHAT?  
 c. The dog wanted to WHAT?  
 d. The dog wanted WHAT?  
 e. The dog WHAT?  
 f. The WHAT?  
 g. WHAT?

[Bolinger 1987: 263]

The *wh*-phrase can even replace part of a word (71) (Cooper 1983; Janda 1985).

(71) She believes in WHAT-jacency?

[Janda 1985: 175, ex. 3c]

Finally, echo questions may display non-declarative clause-type characteristics, while non-echoic *wh*-in-situ questions always display the clause-type characteristics of a declarative (Ginzburg & Sag 2000; see also Poschmann 2015: 138-141). Examples (61) and (62) showed that echo questions may take non-declarative aspects like a fronted *wh*-phrase (61) and inversion (62). These clause-type characteristics also include other features. Echo questions with an interrogative structure license an NPI, while echo questions with a declarative form do not (Noh 1998; Poschmann 2015). Similarly, modal particles in German that are only felicitous in interrogatives, are also felicitous in echo questions with an

interrogative form, but not in echo questions with a declarative form (Beck & Reis 2018; Poschmann 2015). So echo questions can really display the clause-type characteristics of different sentence types (Reis 1992).

In summary, like non-echoic *wh*-in-situ and even more clearly, echo questions are licensed by Maximal Givenness. They also display a prosody that is in line with this, are infelicitous as indirect questions (if they contain only one *wh*-phrase), do not display intervention effects and have a non-standard interpretation consistent with a singleton-set of propositions. Unlike non-echoic *wh*-in-situ, they echo a previous utterance (they have a reprise function), are widely available with a non-standard form (cf. *a what*) and may display the characteristics of a non-declarative sentence-type.<sup>70</sup>

The fact that echo questions must be Maximally Given suggests that they are interpreted via a contextually supplied choice function, like choice function *wh*-in-situ in French.<sup>71</sup> However, other properties of echo questions are unique to echo questions (as also confirmed for French by the rating study targeting questions with *des quoi* in Section 2). All of this suggests that French choice function *wh*-in-situ and echo questions are both licensed by a contextually supplied choice function, while the structure of these two question types is still distinct. (Part of) the difference may lie in the presence of another question operator. I mentioned in Chapter 5 that I assume that non-echoic *wh*-questions contain a question operator in CP, cf. Heim's (2000) interpretation of Karttunen (1977). Yet it has been suggested in previous literature that echo questions contain a different type of question operator, an echo question operator (Dayal 1996; Sobin 2010). If non-echoic choice function

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<sup>70</sup> They also seems to differ regarding intervention effects. While my informants did not accept an information seeking *wh*-in-situ question with *seulement* 'only', even if it was Maximally Given, echo questions with *seulement* 'only' are acceptable (see Chapter 5).

<sup>71</sup> The fact that the *wh*-phrase in echo questions may take the place of many types of constituents (cf. (70) above) is an indication that the choice function in echo questions is a generalised choice function cf. Yanovich (2005): a choice function that is not just available for *wh*-DPs but for many types of constituents. To the extent that non-echoic choice function *wh*-in-situ is felicitous with a form like *a what/des quoi* 'DES what', I assume the availability of a generalised choice function in those questions as well.

*wh*-in-situ contains a regular question operator while echo questions contain an echo question operator, this may explain (some of) the differences between the two question types. I leave the details of this proposal to be worked out by future research.

## 7 General discussion

Building on Chapter 5, which discussed intervention effects, the current chapter extends the proposal that French speakers employ two mechanisms to interpret *wh*-in-situ questions. First, it investigated several other properties of questions interpreted via the two mechanisms. I also suggested that certain speakers only have choice function *wh*-in-situ, while other speakers have both mechanisms. This explains a number of controversies in the literature. Second, the chapter showed that the choice function account is also a promising direction of research for contextually restricted *wh*-in-situ in English and German.

While the chapter investigated the felicity of covert movement *wh*-in-situ in long-distance questions and inside strong islands, it did not do so for choice function *wh*-in-situ. This is hard to investigate in French, as a question containing an in-situ *wh*-phrase in a long-distance question or inside a strong island can always be interpreted via covert movement. If there is no intervener or non-standard form like *des quoi* 'DES what' in French, it is not possible to know which mechanism is used to interpret *wh*-in-situ, if the question is Maximally Given.<sup>72</sup> In English and German, *wh*-in-situ is felicitous in long-distance questions and inside strong islands (Bobaljik & Wurmbrand 2015; Pires & Taylor 2009; Reis 1992).

The acceptability of French choice function *wh*-in-situ in indirect questions was also not investigated directly. *Wh*-in-situ in indirect questions is infelicitous in English and German and, according to Bobaljik

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<sup>72</sup> The contexts that Oiry (2011) used to elicit long-distance questions would license the use of a choice function under my proposal: both the context that she calls 'presuppositional' and the context she calls 'non-presuppositional' make the question Maximally Given. However, as an interpretation via covert movement can never be ruled out in such a context, this does not shed any light on the issue.



and Wurmbrand (2015), in all *wh*-fronting languages with restricted *wh*-in-situ. Moreover, covert movement *wh*-in-situ is infelicitous in indirect questions in French and Chapter 2 showed that there is not much data variation regarding this topic. This makes it plausible that French choice function *wh*-in-situ is also infelicitous in indirect questions. (I come back to this below.)

The infelicity of covert movement *wh*-in-situ in indirect questions is surprising from a cross-linguistic perspective. In true *wh*-in-situ languages like Mandarin Chinese, Japanese or Korean, *wh*-in-situ is the standard, also in indirect questions. It has been suggested that a second difference with true *wh*-in-situ languages concerns strong island effects (e.g. Cheng & Rooryck 2000; Mathieu 2002). French *wh*-in-situ questions have been claimed to exhibit strong island effects, even for *wh*-arguments. Yet Mandarin Chinese does not display strong island effects if the *wh*-phrase is an argument (i.e. not an adverbial) (Reinhart 1998; Tsai 1994b). However, the rating study reported in Section 3 did not confirm that French *wh*-in-situ questions with an argument *wh*-phrase inside an adjunct island are unacceptable. While such questions were not judged to be maximally natural, they were not judged to be totally unnatural either. I have no explanation for why these questions, which I assumed involve covert movement, are not clearly unacceptable inside an adjunct island. French covert movement *wh*-in-situ is not set apart by the occurrence of intervention effects, since true *wh*-in-situ languages like Japanese and Korean also display intervention effects (Beck & Kim 1997; Tanaka 1997). This leaves two properties that clearly distinguish French *wh*-in-situ from true *wh*-in-situ languages. One is the infelicity as indirect questions, and the other is the fact that *wh*-in-situ is not the only strategy of forming *wh*-questions in French.

In Section 4, I hypothesised that there are speakers whose grammar only contains a choice function to interpret *wh*-in-situ (Type A speakers), whereas other speakers also have the covert movement option (Type B speakers). There seems to be a tendency for older literature to present data that, under my analysis, represent a Type A grammar (e.g. Boeckx et al. 2001; Chang 1997; Cheng & Rooryck 2000), whereas later literature is

more often consistent with a Type B grammar (e.g. Baunaz 2011; Reinhardt 2019). However, this is far from a clear correlation across all publications.

Nevertheless, the picture is consistent with the idea that the language is changing, or that a particular language change is almost complete. The grammar of Type A speakers may reflect an earlier variety of the language. This variety would be a *wh*-fronting language that only allows for contextually restricted *wh*-in-situ, in this sense similar to languages like English and German. At some point, choice function *wh*-in-situ questions may have been subject to a process of re-analysis. Covert movement is a mechanism that was already present in the grammar to interpret multiple *wh*-questions. It seems plausible that certain speakers began to use covert movement to interpret single *wh*-in-situ questions as well, thus developing a Type B grammar. This process may have been facilitated by the use of choice function *wh*-in-situ in contexts that made the relevant meaning 'semi-salient', i.e. contexts that allow for an interpretation of Maximal Givenness as well as an alternative interpretation (see Chapter 5). In this way, covert movement may have become a second mechanism to interpret *wh*-in-situ questions. This resulted in French *wh*-in-situ questions that are felicitously used out of the blue, at least for younger speakers (as confirmed by the rating study in Section 3).

Would such a language change also help to account for the contradictory data in the literature regarding the felicity of *wh*-in-situ in long-distance questions (see Chapter 2 for references)? If so, the hypothesis would have to be that covert movement *wh*-in-situ allows for long-distance questions, while choice function *wh*-in-situ does not. As I explained above, the hypothesis that choice function *wh*-in-situ is infelicitous in long-distance questions cannot be tested in current day French. English and German *wh*-in-situ do allow for long-distance *wh*-in-situ. I suggested in Section 5.2 that it may be worth pursuing a choice function account for English and German *wh*-in-situ as well. If French choice function *wh*-in-situ is infelicitous in long-distance questions, this would constitute a difference with English and German that a choice function account of English and German *wh*-in-situ would have to explain.

The hypothesised language change does not yet explain the infelicity of covert movement *wh*-in-situ in indirect questions, in which French differs from true *wh*-in-situ languages. One possible property that distinguishes true *wh*-in-situ in languages like Mandarin Chinese, Japanese and Korean from French is the fact that the *wh*-words in the former are *wh*-indefinites. They do not have inherent quantificational force, but rather behave like variables, which can have interrogative as well as non-interrogative interpretations (Cheng 1991). They receive an interrogative interpretation if they are bound by a *wh*-operator (Tsai 1994a). In other words, these true *wh*-in-situ languages have a *wh*-operator/marker base-generated in the left periphery, including in the case of an indirect question (Cheng 1991 and Tsai 1994a). Nonetheless, it is not clear why covert movement of a *wh*-phrase cannot satisfy the selection restrictions imposed by indirect questions in French. The same is true for choice function *wh*-in-situ in several *wh*-fronting languages (cf. Bobaljik & Wurmbrand 2015). I leave these issues for future research.

## 8 Conclusions

In the previous chapter, I suggested that French has two different mechanisms to interpret *wh*-in-situ, covert movement and a choice function, the latter of which is licensed by Maximal Givenness. In this chapter, I extended this proposal. The first half of the chapter investigated several properties of questions interpreted via the two mechanisms. I also suggested that certain speakers only have the choice function option, which explained several points of data confusion in the literature. The second half of the chapter explored to what extent the choice function account is also a promising direction of research for *wh*-in-situ in *wh*-fronting languages like English and German.

I first reported on a rating study that targeted questions of the form *Tu as acheté des quoi*, lit. 'You have bought DES what', where *des* is the plural indefinite article. The results showed that such questions are not generally acceptable ('natural') in a context designed to make them Maximally Given, but that they are judged more natural in such a context than in an out of the blue context. One item, which had some properties that strengthened the contextual salience of the indefinite article, was rated reasonably high. I hypothesised that it is in principle possible to interpret a *wh*-in-situ question with *des quoi* 'DES what' via a choice function, but not via covert movement. However, in many cases the speaker may not perceive the indefinite article as salient enough to really make the question Maximally Given (unless the article is mentioned in the previous utterance, which would result in an echo question). In addition, the study confirmed that echo questions with *des quoi* 'DES what' are felicitous in French.

The chapter then returned to the data variation in Chapter 2 and investigated this from the perspective that French has two mechanisms to interpret *wh*-in-situ. I first reported on a rating study that examined several properties of *wh*-in-situ in an out of the blue context. Specifically for participants of age 20-35, I investigated the felicity of *wh*-in-situ a) in indirect questions, b) with an argument *wh*-phrase inside a strong adjunct

island and c) in long-distance questions (with indicative mood and finite tense).

I then suggested that the data variation regarding the extra-strong presupposition, the large sentence-final rise and intervention effects can be accounted for by the combination of two factors: firstly, the existence of speakers with two different grammars and secondly, the difficulty of construing a context that makes the question Maximally Given when this question contains an intervener. In particular, I hypothesised that certain speakers (Type A speakers) only have the choice function option to interpret *wh*-in-situ, while other speakers (Type B speakers) also have the covert movement option. I proposed that what gives the impression of an extra-strong presupposition is Maximal Givenness, thus explaining where the appearance of an extra-strong presupposition comes from. Consequently, Type A speakers would observe that French *wh*-in-situ questions involve an extra-strong presupposition, while for Type B speakers, *wh*-in-situ is (also) acceptable out of the blue. The large sentence-final rise was analysed as a correlate of narrow focus marking. Choice function *wh*-in-situ questions have a narrow focus on the *wh*-word and therefore standardly display such a rise. Yet covert movement *wh*-in-situ questions may have different focus structures, so Type B speakers would not necessarily observe such a rise.

This leads to the overview of the properties of French *wh*-in-situ questions for speakers aged 20 to 35 in Table 10. In this table, *ok* means ‘acceptable’ and  $\wedge$  means ‘acceptable in English and German’. Note that while choice function *wh*-in-situ does not involve intervention effects as such, such questions are only acceptable with an intervener if the speaker can construe the necessary context.

Table 10. Properties of French *wh*-in-situ questions interpreted via the two mechanisms

| PROPERTY                           | CHOICE FUNCTION    | COVERT MOVEMENT    |
|------------------------------------|--------------------|--------------------|
|                                    | <i>WH</i> -IN-SITU | <i>WH</i> -IN-SITU |
| Maximal Givenness                  | yes                | no                 |
| Ok in long-distance question       | ?^                 | yes                |
| Ok in indirect question            | no                 | no                 |
| Ok inside adjunct island           | ?^                 | intermediate       |
| Intervention effects               | no                 | yes                |
| Sentence-final rise                | yes                | depends on focus   |
| Non-standard interpretation        | yes                | no                 |
| Ok with <i>des quoi</i> 'DES what' | more               | no                 |

Subsequently, I argued that the choice function account is also a promising direction of research for *wh*-in-situ questions in *wh*-fronting languages like English and German. Although this should be investigated further, I suggested that Maximal Givenness goes a long way towards analysing the contextual restriction of *wh*-in-situ in these languages. The chapter also showed that *wh*-in-situ questions in English and German share several other (related) properties with French choice function *wh*-in-situ. In addition, it demonstrated that *wh*-in-situ in English and German shares many characteristics with echo questions, while still differing in other respects.

Finally, the chapter made some new observations about echo questions. Following Beck & Reis (2018), I showed that echo questions can have different clause type characteristics than the preceding utterance, contra Sobin (2010). Moreover, the chapter demonstrated that echo questions must be Maximally Given and display a non-standard interpretation that is consistent with the denotation of a singleton-set of propositions. I therefore proposed that echo questions are interpreted via a contextually supplied choice function, like French choice function *wh*-in-situ, although the structure of these two types of question is still distinct in ways that need to be clarified by future research.