The French *c'est*-cleft: an empirical study on its meaning and use

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1. Introduction

In French, the special syntactic construction called the *c'est*-cleft is associated with two important intuitions. First, the *c'est*-cleft *C'est X qui/que P* in (1a) is associated with an exhaustive inference given in (1c), which is somehow similar to the assertion found in exclusive sentences *Seul X P* shown in (1b), leading some researchers to claim that exhaustivity is part of the semantic meaning of the cleft (Clech-Darbon et al. 1999).[1]

(1) a. C'est [Batman]$_F$ qui a pour mission d'attraper les cambrioleurs.[2]
it-is Batman who has for mission to-catch the thieves
'It is Batman who has the mission of catching thieves.'
b. Seul [Batman]$_F$ a pour mission d'attraper les cambrioleurs.
'Only Batman has for mission to catch thieves.'
c. 'No one else than Batman has the mission of catching thieves.'

Second, mainly popularized by the work of Lambrecht (1994), the usage of the *c'est*-cleft is claimed to be pragmatically motivated to mark focus on elements that occur in positions where French disallows prosodic marking. Thus, Lambrecht defends the claim that *c'est*-clefts are used to mark focus on arguments (2a), and are required with focused lexical subjects (2b) versus (2c) in narrow-focus cases (when there is a focus/ground articulation).[3]

(2) a. C'est [dans la cuisine]$_F$ que l'arme a été découverte.
'It is in the kitchen that the weapon was discovered.'
b. C'est [Marie]$_F$ qui a découvert les empreintes sur l'arme.
'It is Marie who discovered the fingerprints on the weapon.'
c. ?[Marie]$_F$ a découvert les empreintes sur l'arme.
'[Marie]$_F$ discovered the fingerprints on the weapon.'

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[1]Similar claims are made cross-linguistically for structures comparable to the *c'est*-cleft, such as the *it*-cleft in English or the pre-verbal position in Hungarian (Szabolcsi 1981; Kiss 1998).

[2]In this paper, I signal that an element X is the focus by marking it as follows: [X]$_F$.

[3]For a complete discussion of the difference between narrow versus broad focus, I refer the reader to Clech-Darbon et al. 1999.

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In this paper, I provide empirical evidence challenging both intuitions. To begin with, despite surface similarities between the *c'est*-cleft and exclusive sentences (both seem to be used when *X P* and nobody else *P*), significant differences are illustrated in (3) and (4), which represent a challenge for a semantic account of exhaustivity. In these examples, changes in acceptability occur whether an exclusive sentence or a cleft sentence is used. In (3), the cleft differs from the exclusive sentence in prejacent inferences under negation. In (4), the *oui, mais*-continuation that does not offer a direct contradiction is infelicitous with an exclusive but accepted with a cleft.

(3) a. Pierre n'a pas seulement mangé [de la pizza]$_F$, bien qu'il ait mangé de la pizza.
'Peter didn't only eat [pizza], though he did eat pizza.'
b. *Ce n'est pas [de la pizza]$_F$ que Pierre a mangé, bien qu'il ait mangé de la pizza.
'It wasn't pizza that Peter ate, though he did eat pizza.'

(4) a. Thomas: Seule [Marie]$_F$ a ri.
'Only [Marie]$_F$ laughed.'
Julie: Non. / *Oui, mais [Jean]$_F$ a ri aussi.
'No. / *Yes, but [Jean]$_F$ laughed too.'
b. Thomas: C'est [Marie]$_F$ qui a ri.
'It is [Marie]$_F$ who laughed.'
Julie: Non. / Oui mais [Jean]$_F$ a ri aussi.
'No. / Yes, but [Jean]$_F$ laughed too.'

Next, the intuition concerning the cleft's usage is challenged in recent studies (among others, cf. Hamlaoui 2008 and Beyssade et al. 2011). The former argues that the cleft's occurrence is prosodically motivated, claiming that non-subjects do not need to be realized via clefting when occurring in informational contexts. The latter concentrates on the prosodic realization of focus in canonical sentences, claiming that prosodic cues alone can be used to signal focus in French. Yet, there are no studies to my knowledge that have tested how different grammatical types of focus (subject, non-subject, predicate, and sentence focus) are produced in a semi-spontaneous experimental setting.

Before turning to the organization of the paper, I shall define how *focus* is understood in this work. Following Zimmerman and Onea (2011:1658), I take focus to be 'a universal category at the level of information structure which plays a decisive role in common ground management and information update.' Crucially, I take focus to be triggered by a question-under-discussion (QUD), whether this question is explicit or not, and focus to be the element in the answer which instantiates the open variable in the QUD.

The paper is organized as follow: §2 gives a background on the literature on French *c'est*-clefts. §3 discusses the first intuition introduced above. I argue that a cleft of the form *c'est X qui/que P* does not behave like exclusive sentences, in the sense that the exhaustivity they trigger can be rejected without denial of the asserted content *X P*. I present results from a forced-choice experiment showing that speakers do not overtly contradict the statement found in a previous cleft sentence, whereas they do for statements found in an exclusive sentence. From these results, I conclude that, semantically, the exhaustivity is not part of the at-issue meaning of the cleft like it is for exclusive sentences. §4 turns to the second intuition by discussing the usage of the *c'est*-cleft and by introducing the pilot study of a production experiment designed to explore how different types of focus are realized. The preliminary results demonstrate that speakers do not reliably use clefts to mark focus on arguments (against

Lambrecht 1994). While grammatical subjects are mainly clefted, grammatical objects (either direct or indirect) are often realized *in situ*. These results correlate with intuitions found in past studies on French like Hamlaoui 2008. However, *contra* Vion & Colas 1995, the results indicate that clefts are not consistently used in contrastive contexts. Adding to the experimental results, the section also discusses constructed examples where focused subjects in sentence-initial position are strongly preferred. While these examples seem to challenge the data observed in the pilot experiment, they are accounted for in the optimality-theoretic model I develop in §5. This model, constituted of a ranking of the relevant syntactic, prosodic, and pragmatic constraints, explains the non-random alternation between *c'est*-clefts and canonical sentences.

2. Background on the French *c'est*-cleft

It is widely assumed that French marks focus via syntactic reordering, and that to a much greater extent than related Romance languages (Dufter 2009). Researchers, and first and foremost Lambrecht (1994), make two proposals that have been challenged by following scholars. First, Lambrecht argues that French categorically bans prosodic marking from sentence-initial position. Thus, 'bad' subjects are moved into a dedicated focus position (the cleft) in which they are interpreted as a focus, and marked as such. Second, he proposes that there is a one-to-one relationship between the grammatical function of the focused element and its realization by proposing three main focus categories: argument-focus, predicate-focus, and sentence-focus, which are all realized differently. Yet subsequent studies differ in the account they give concerning the cleft's occurrence. One interesting account is found in Clech-Darbon et al. 1999, which redefines the syntactic structure of the cleft. While the cleft had been previously analyzed as a single CP (Belletti 2005) or as a construction (Lambrecht 1994), Clech-Darbon and colleagues argue that there are in fact no real cleft sentences per se. Instead, a cleft is simply analyzed as the combination of an identificational TP (in which the focused constituent is merged as a complement) and to which a CP is right-adjoined. The CP is a classical relative clause in which a relative operator moves from SpecTP to SpecCP. The structure they propose is represented in (5) and is contrasted with traditional generative analyses where the focused phrase and the relative clause form one constituent (6):

(5) $[_{IP}\ [_{IP}$ C'est$_i$ $[_{VP}\ t_i\ [_{DP}$ Marie]]] $[_{CP}\ Op_j\ [_{C'}$ qui $[_{IP}\ t_j$ a mangé $[_{DP}$ un biscuit]]]

(6) $[_{TP}$ C'est $[_{TOP}[_{FOC}$ Marie $[_{TOP}\ [_{VP}$ <être> $[_{SC}$ <Marie> $[_{CP}$ qui a mangé un biscuit]]]]]]]

The syntactic analysis in Clech-Darbon et al. 1999 led scholars like Hamlaoui (2008) to look at the syntax-phonology interface in a new way. Hamlaoui argues the advantage of analyzing the cleft as in (5) is that it makes correct predictions regarding prosody: main stress falls on the rightmost edge of an intonational phrase. Indeed, by creating two separate IPs, the cleft allows the focus element to receive main stress and to fulfill the rightmost preference of the language for accent placement (figure 1), which is simply not the case when one analyzes the cleft as in (6).

Hamlaoui argues that a cleft construction is preferred over a canonical sentence in two contexts: answers to subject-constituent questions and contrastive/corrective contexts. Her proposal challenges Lambrecht's in the sense that she postulates no need for the focused constituent or the main stress to move to a dedicated focus position. Instead, she argues that the mapping of phonology and syntax displayed in figure 1 allows the focused constituent to be directly merged in the position where grammar assigns main stress (rightmost). Grammatical

subjects are realized in a cleft to receive rightmost stress when focused, and grammatical objects remain in situ. In this paper, I follow her view of cleft sentences.

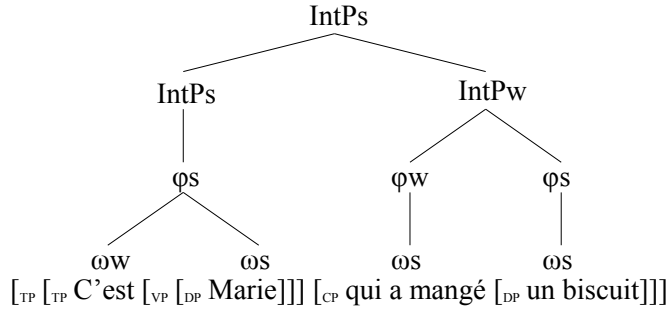

Figure 1. Syntactic structure for the *c'est*-cleft (from Hamlaoui 2008)

Finally, let's discuss the semantic contribution of the *c'est*-cleft, and more specifically the exhaustive inference associated with it. There is, to the best of my knowledge, only a couple of studies that propose a formal analysis of exhaustivity in French, namely Clech-Darbon et al. 1999 and Doetjes et al. 2004. The first study proposes a semantic account of the inference, in the sense that they argue the cleft contributes exhaustivity to the truth conditions of the sentence, as if the focus were under scope of an exclusive operator. The second study remains unclear about the nature of the inference but argues exhaustivity arises when the focused element is referential. This scarcity of formal analyses is interesting because the majority of studies on the cleft discuss its identificational/exclusive property. Lambrecht (1994), Katz (1997) and deCat (2007) all mention that one of the discourse functions of the *c'est*-cleft is to identify the *X* as having the property *P*, carrying the inference that nothing else in the context displays the property *P*.

3. The *c'est*-cleft's meaning: the exhaustive inference

3.1. Introduction

Despite the wide number of studies on the nature of the exhaustive inference, it is only within the last couple of years that researchers turned to experimentally testing the claims advanced in past theoretical works. Unfortunately, none of the proposals so far can be said to be both descriptively adequate and theoretically motivated. Perhaps the biggest problem for most of these accounts is that empirical evidence reveals a rather surprising fact: the main function of the cleft is not, as often assumed in the previous literature, *exhaustivity*. Cross-linguistically, different constructions have been rightfully considered exhaustive and recognized as being somewhat similar to each other. The most discussed forms include the English *it*-cleft, its German counterpart, and the preverbal focus position in Hungarian. Challenges in accounting for their meaning are similar to the ones I discussed for the French *c'est*-cleft in the previous section. Interestingly, the cross-linguistic literature differs from the French literature in that there is an extensive body of work on the exhaustive inference and the semantics of clefts, whereas the French literature focuses more on documenting the pragmatic functions of *c'est*-clefts (its exhaustivity being too often taken for granted).

In the English literature, it has become almost formulaic to begin a paper on the semantics of clefts with the observations that a cleft *It was NP that P-ed* bears the existential presupposition (i) there exists an x such that $P(x)$ and that it implies (ii) that the referent of NP in some way exhausts the set $\{x \mid P(x)\}$. But we can immediately see that these two inferences

do not share the same footing. The existential presupposition is the only one that passes standard projection tests for presupposition. That is, (8a) follows from each of (7a-d), but (8b) obviously does not.

(7) a. It was a cake that Mary baked.
b. It wasn't a cake that Mary baked.
c. Was it a cake that Mary baked?
d. If it was a cake that Mary baked, we're all going to be sick.

(8) a. Mary baked something.
b. Mary didn't bake anything other than a cake.

Three main types of analysis exist for explaining where the exhaustive inference in (ii) comes from: scholars either argue that it is entailed (i.e. the cleft semantically contributes exhaustivity to the meaning of the sentence), that it is derived from a presupposition, or that it is implicated. Yet, some problems arise with each of these analyses. First, if exhaustivity were indeed entailed, originating in Bolinger 1972 and argued for in Atlas & Levinson 1981, the continuations (a-d) to (9) below would be informative and felicitous. However, it is simply not the case. The continuations are infelicitous precisely because the cleft does not assert anything about exhaustivity, and is therefore inconsistent. In order to be felicitous, what is needed is the explicit indication of exhaustivity, for example by inserting an exclusive particle like 'only' as illustrated in the continuations (a'-d'). The experiment presented in §3 also provides evidence that exhaustivity is not asserted.

(9) I know that Mary baked a cake, …
a. #but it wasn't a cake that she baked!
b. #but was it a cake that she baked?
c. #but I've just discovered that it was a cake that she baked!
d. #if it was a cake that she baked, then we're all in trouble.

a'. but it wasn't only a cake that she baked!
b'. but was it only a cake that she baked?
c'. but I've just discovered that it was only a cake that she baked.
d'. if it was only a cake that she baked, then we're all in trouble.

The second type of approach, defended for example in Percus 1997 and Hedberg 2000 assumes that exhaustivity is in a sense presupposed. The biggest problem facing presuppositional analyses, as mentioned above, is that exhaustivity does not seem to project out of standard embeddings as shown below, where (10b) does not follow from (10a).

(10) a. If it is Paul and Mary who arrived, the party is about to start.
b. Nobody else arrived.

Finally, Horn (1981) suggests that clefts only conversationally implicate exhaustivity. In general, Horn claims that any device which asserts $P(x)$ and presupposes that there exists an x such that $P(x)$ gives rise to the following conversational reasoning: if there were others contextually relevant individuals that satisfy P, the speaker would have mentioned them. Since he did not, there are not. The only difficulty that appears with this pragmatic account concerns another characteristic of conversational implicatures: *cancelability*. Horn illustrates such a

problem with the examples in (11), where it seems strange for the same speaker to say both parts of the utterance without sounding like contradicting himself (11a). However, cancelability does not seem too problematic when uttered by another speaker (11b).

(11) a. ?It was a pizza Mary ate; indeed, it was a pizza and a calzone.
b. A: It was a pizza Mary ate.
B: Indeed, it was a pizza and a calzone.

3.2. Experiment 1

The experiment presented in this section is derived from Onea & Beaver 2011, and contributes to the experimental trend started on the issue by researchers like Onea (2009) by testing the degree of exhaustivity of the French *c'est*-cleft construction. The goal of the experiment is to confirm or falsify that, in French, the cleft contributes to the truth-conditional meaning of the utterance. The hypothesis is that the cleft only enriches the interpretation of the utterance on an intended level, the exhaustivity being part of its non at-issue meaning.[4] The design must therefore test whether or not speakers systematically attribute an exhaustive reading to the cleft sentences. To do so, I rely on the idea that if some aspect of the sentence meaning is non at-issue, the speaker must be able to cancel the implicature without also denying the truth of the sentence. The core assumption behind experiment 1 relies on a property commonly attributed to implicatures, that is their optionality or cancelability. Therefore, if a speaker does not attribute a strong exhaustive reading to a sentence, he will have no problem choosing a continuation that adds to the previous sentence (e.g. a continuation sentence introduced by *yes, and*). However, if the speaker attributes a strong exhaustive reading to a sentence, he will tend to overtly contradict a sentence that continues the discourse (e.g. by choosing a continuation introduced by *no*).

3.2.1. Participants

24 undergraduates from the University of Toulouse Le Mirail were recruited for this experiment. All participants had normal, uncorrected vision and were native speakers of French. All were naive as to the purpose of the experiment.

3.2.2. Material and design

The experiment was designed with the experimental software WebExp. Each experimental item consisted of a question-answer pair (Q-A) and three possible continuations (C1, C2, C3). The answers to the Q-A pair all contained a two-place predicate R, a focus argument F and a background argument B, and differed only in form: either a canonical sentence (can), an exclusive sentence including *seulement* (exc) or a *c'est*-cleft sentence (cl). These three sentence forms constitute our three conditions. Within each condition, a sub-condition was introduced depending on whether the grammatical subject (subj) or the grammatical object (obj) was focused. Thus, the experiment is a 3x2 design with a total of six conditions: can-subj, can-obj, exc-subj, exc-obj, cl-subj, and cl-obj. A total of 60 different items was created in order to avoid recognition by the participants (ten different lexicalizations of each six conditions). The experimental setup is within subject, such that every participant saw exactly eight items from each of the three conditions (can, exc, cl); that is four items per sub-condition. The

[4]Simons et al. (2010:323) propose a definition of at-issueness where a proposition *p* is at-issue iff the speaker intends to address the QUD via ?*p*.

continuations were given through forced choice, the participants being offered three possibilities which were derived by either changing the focus element F' or the background element B' and adding either *oui, et* ('yes, and'), *oui, mais* ('yes, but') or *non* ('no') as a root. A typical example of an experimental item is given in (12) for the cleft-obj condition. Participants saw the experimental items in written form without any clear marking of what element was focused, since the preceding question-under-discussion was presented to trigger the correct focus.

(12) Q: Qu'est-ce que le fermier a brossé?
What is it that the farmer has brushed?
'What is it that the farmer brushed?'
A: C'est le cheval que le fermier a brossé.
'It's the horse that the farmer brushed.'
C1: Oui, et le fermier a aussi brossé la chèvre.
'Yes, and the farmer also brushed the goat.'
C2: Oui, mais le fermier a aussi brossé la chèvre.
'Yes, but the farmer also brushed the goat.'
C3: Non. Le fermier a aussi brossé la chèvre.
'No. The farmer also brushed the goat.'

Participants were asked to choose which continuation seemed the most natural given the previous context: the Q-A pair. The instructions made clear to the participants that this Q-A pair and the continuation were uttered by three different persons. No participant saw the same lexical item in more than one condition. In addition to the eight experimental items, each participant saw two introductory items, two warm-up items and ten fillers. The latter items were created to prevent the development of specific expectations or strategies on the part of the subjects.

3.2.3. Results and discussion

The experimental results are given in figure 2 below in absolute numbers. The results of the experiment clearly show that the exhaustivity effect associated with a *c'est*-cleft is not as strong as the one associated with an exclusive, but much stronger than an underspecified sentence like a canonical. The results support the prediction that speakers are more likely to overtly contradict a semantically exhaustive sentence (i.e. sentences with an exclusive) than other types of sentences. Indeed, if the exclusive *seul* is present, participants choose to update the conversation with the continuation introduced by *non* (out of 192 exclusive sentences, 181 were continued with *non*). As predicted too, a canonical sentence is not contradicted because not semantically exhaustive. Conversations with canonical sentences are continued by a simple addition rather than a correction, introduced by *oui, et* (out of 192 canonicals, 115 were continued with *oui, et*). Finally, in the cleft condition, a conversation is continued with *oui, mais* 113 times out of 192. Speakers therefore choose the intermediate option to update a cleft conveying a medium degree of disagreement; not directly accepting the change of focus as an addition to the preceding answer, but not overtly denying it either. These results correlate with the prediction that cleft sentences are associated with an exhaustive inference that is cancelable, therefore not part of their at-issue meaning. A statistical analysis shows that the difference in distribution of responses across the three answer types was highly significant ($\chi^2(3) = 40.698$, $p < .001$). Therefore, as predicted, we get a significant effect for the continuation chosen depending on the sentence form presented in the previous answer. The distribution of

continuations chosen after exclusive sentences was significantly different from the distribution of continuation chosen after *c'est*-clefts ($\chi^2(2) = 311.9$, $p < .001$). Differences between clefts and canonical sentences are also relevant, although obviously much smaller: ($\chi^2(2) = 20.81$, $p < .001$).

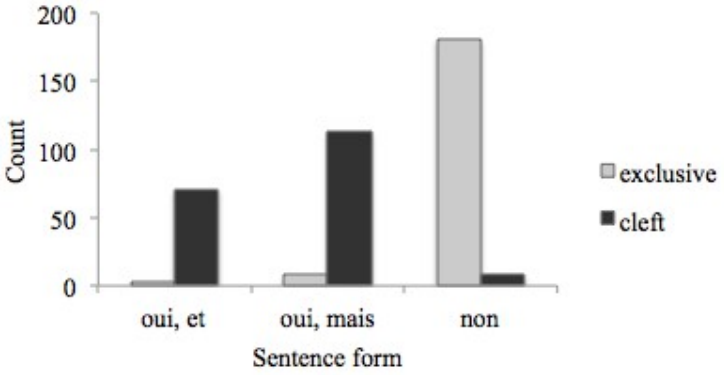

Figure 2. Distribution of continuations by sentence form

I conclude that the predictions made are confirmed by this experiment, and hence, the assumption that *c'est*-clefts do not contribute at issue exhaustivity is confirmed. Instead, the inference is triggered by the not at-issue content of the cleft.

4. Cleft's usage: producing the *c'est*-cleft

4.1. Introduction

If one looks at the literature on French focus marking, it is almost conventional to find that French marks focus via syntactic means. Compared to other Romance languages (Dufter 2009) or to English, French is often assumed to require special syntactic constructions to mark focus, and seems to be known as the 'black sheep' for not having a flexible prosody. Yet, in the past ten years, much work has been done on the prosodic markings of information structure in French, especially the characteristics of the prosodic realization of focus (Beyssade et al, 2011; Féry 2001; Sun-Ah & Fougeron 2000). But no clear consensus on the interaction of prosody and syntax is reached. Scholars depart from considerably differing assumptions regarding the acceptability of a sentence form given a certain context; syntacticians predicting movement of the presupposed material in a relative clause while most phonologists assume a narrowly focused XP can be realized via prosody in situ.

4.2. Experiment 2

The semi-spontaneous data analyzed in this section stem from an elicited production task, which constitutes a replication from Gabriel 2010.[5] The experiment presented here constitutes a pilot and is currently being conducted on a larger scale. It contributes to the experimental trend happening in the linguistic field by testing the realization of particular grammatical types of focus in two different contexts. While the majority of previous French experimental studies use written material to elicit data, the present experiment is a semi-spontaneous production task

[5]Gabriel (2010) conducted a production experiment in two varieties of Argentinian Spanish, which examined the interaction of syntax and prosody in the marking of narrow focus subjects, objects, and double objects.

where participants do not produce scripted answers. It also expands on previous studies by including a wider range of grammatical types like indirect object, predicate, and sentence focus. The main research question underlying this study is whether there exists a strict one-to-one relationship between the grammatical function of the focused element and its realization, as predicted by Lambrecht (1994).

4.2.1. Participants

Six native speakers of French participated in the pilot experiment. All participants were living in the United States for less than two years at the time of the experiment. All had normal, uncorrected vision, and were naive as to the purpose of the experiment.

4.2.2. Material and design

The semi-spontaneous data analyzed in this section stem from an elicited production task. Participants were presented with two short picture stories as PowerPoint files and read a one-sentence description for each picture.[6] Participants subsequently read a series of questions targeting different grammatical focus. The questions were numbered, delivered in written form, one at a time, and displayed below the picture it corresponded to in the story line. An example of a visual stimulus is presented in Figure 3.

Description:
Marie achète le journal au kiosque.
'Marie is buying the newspaper at the kiosk.'

Question:
Où est-ce-que Marie achète le journal?
'Where is Marie buying the newspaper?'

Figure 3: Visual stimuli presented to participants in pilot production experiment

The design included three independent variables: focus type, context and question form. Each of these variables had a few levels. For the variable focus type, I tested grammatical subjects, direct objects, indirect objects, predicate, and whole sentence. Two contexts were tested: neutral and corrective. The latter context is labeled *corrective* rather than *contrastive* as often seen in the literature because the stimuli found in that context involved sentences where the focus element was incorrectly identified and participants had to offer a correction according to what was really depicted. An example of a question triggering a neutral context is illustrated in (13a) and a question triggering a corrective context is in (13b). All corrective questions were of the form 'Regarde/Look, *X Predicate Y*, non/no?' with either *X P* or *Y* being incorrect according to the picture.

(13) a. Où est-ce-que Marie achète le journal?
b. Regarde, Marie achète le journal au supermarché, non?

[6]Some of the stimuli used in my production experiment were taken from Gabriel's (2010) study. One of them is reproduced with Gabriel's permission in Figure 3.

The questions were of two forms: either clefted or non-clefted. A clefted sentence was of the form 'Où c'est que Marie achète le journal', and non-clefted were of the form 'Où est-ce-que Marie achète le journal?'.

In this pilot experiment, each participant saw a total of 36 experimental stimuli and 20 distractors. Each participant saw four different lexicalizations of each focus type in both contexts, except for the whole sentence condition, where they only saw four lexicalizations in a neutral context (a contrastive context making no sense to be tested for such an information structure). Thus, the six participants produced a total of 216 experimental stimuli (120 in a neutral context and 96 in a contrastive context). A total of 48 sentences were produced in each condition, except only a total of 24 for the sentence-focus condition.

All speakers were instructed to avoid answering with a single constituent but rather to reply with a full sentence. They were also told to otherwise feel completely free regarding the phrasing of their answers. The three variables were chosen in relation with the three research questions examined. First and most importantly, the focus type was manipulated to test the realization of different focus types and verify whether each focus type is associated with a distinct realization.

Second, the context was altered to study the role of *contrast* in the structure used to mark focus. This variable is motivated by previous studies' assumptions that clefts are used more often when the answer is expressing a contrast (Vion & Colas 1995). The last variable studied is the form of the question answered. This variable is motivated by the idea that there exists a priming effect; the form of the question in some ways biases the form subjects will use when answering. The data was transcribed and systematized according to the sentence form used by the speakers for the expression of the relevant information structure given the preceding question.

4.2.3. Results and discussion

The data from this pilot experiment supports the hypothesis that there is no clear one-to-one relationship between the grammatical function of the focused element and its realization. Sentence focus, predicate focus, and indirect object focus were all realized with canonical structures. The difference in distribution of syntactic strategies used in an answer across the five focus types was highly significant ($p < .001$). The results are also consistent, to a certain extent, with the idea that there exists a subject/non-subject divide, whereby subjects are required to be clefted whereas objects do not. Yet, we will see that the divide is not as obvious, and in fact depends on the interaction of pragmatic and phonological factors rather than simply grammatical ones. An optimality theoretic account of the distributions observed in figures 4 and 5 is developed in §5.

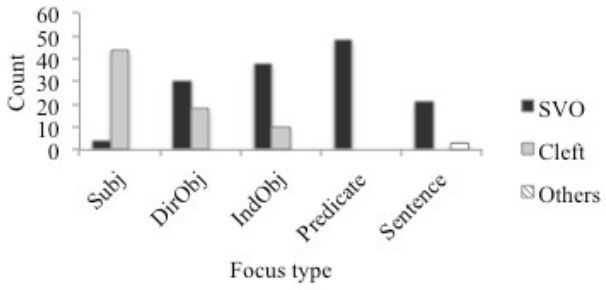

Figure 4. Counts of sentence form produced by focus type

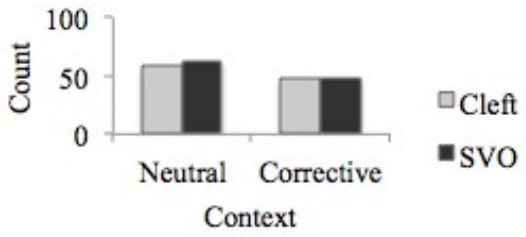

Figure 5. Counts of sentence form produced by context

Focused subjects Within the subject focus condition, the raw number count amounts to 43 clefts used out of 48 sentences produced across all six participants; the difference in the distribution of answer forms being highly statistically significant ($\chi^2(1) = 30.1$, $p < .0001$). The other variables were overridden by the grammatical function of the focused element. Indeed, the context in which the answer is uttered (contrastive versus neutral) and the form of the previous question (clefted versus non-clefted) had no effect on the form produced by participants. In contrastive contexts, participants only produced clefts (24 clefts out of 24 sentences produced), whereas four canonicals out of 24 sentences produced were found in the neutral context condition. This difference is, however, insignificant. No canonical sentence was produced whether the previous question form was clefted or non-clefted. These results correlate with the past literature, which argues that French bans prosodic marking on heavy NPs in sentence-initial position. Yet, despite appearing quite straightforward, some examples seem to require a subject focus to be realized *in situ*. Consider the following examples (produced by native speakers during a Christmas meal):

(14) A: Ben alors, personne va me finir ce foie-gras?
'So what, no one is going to finish this foie-gras?'
B: Si si, [Pierre]$_F$ va bien le finir.
'Yes, of course, [Peter]$_F$ is going to finish it.'

(15) A: Mais alors d'après toi, qui doit se sentir concerné?
'So according to you, who must feel concerned?'
B: [Tous les pays qui font partie de l'Union Européenne]$_F$ doivent se sentir concernés.
'[Every country that's part of the EU]$_F$ must feel concerned.'

(16) A: Qui a participé à la conférence?
'Who participated in the conference?'
B: [Une trentaine d'étudiants]$_F$ ont participé.
'[30 students]$_F$ participated.'

In (14), the focus element constitutes a contrast: the state of belief of the speaker S and the addressee A differ since S believes that no one will finish the foie-gras, whereas A offers another belief: Peter will. In (15) and (16), the focus subject is modified by a quantifier or a numeral. But these examples seem to occur only under specific pragmatic conditions. This is one of the limitations of the pilot experiment presented in this section: it does not include the pragmatic context that appears to force *in situ* focus marking on subjects.

The following generalizations account for the position of focused subjects in the data and the constructed examples discussed above. These generalizations will be translated as constraints involved in the OT model and explained in more detail in §5. In (16), I call a non-

quantified lexical subject any element that's a grammatical subject and is not modified by a quantifier or a numeral.

(17) By default, use a cleft to focus non-quantified lexical subjects. Use a canonical for quantified subjects and topical subjects.

(18) Use a canonical if you say something about the extension of the predicate. Use a cleft if there is a mismatch between the speaker and the addressee's belief state.

Focused objects (direct and indirect) In comparison with the focused subjects that frequently appear clefted, the focusing of an object, either direct or indirect, seems to be freer. The indirect object condition is unproblematic: the raw number count amounts to 38 canonicals and 10 clefts for a total of 48 sentences produced by six participants. This result is statistically significant ($\chi^2(1) = 16.3$, $p < 0.001$). This result is easily explained by the prosodic characteristics of French: given that indirect objects appear canonically in the rightmost position of the clause where main stress is assigned in unmarked cases, indirect objects do not need to be moved in a different syntactic position.[7] Moreover, we observe that out of the 10 clefts produced, 9 were produced in the corrective context.

Within the direct object condition, the raw number count amounts to 18 clefts and 30 canonicals out of 48 sentences produced across all six participants; the difference in the distribution of answer forms is not statistically significant ($\chi^2(1) = 3.00$, $p = 0.08$). The context condition does not explain this result either, since the 18 clefts are produced in corrective contexts as well as neutral contexts. This result is surprising and interesting for two reasons. First, it correlates with results found cross-linguistically for Spanish in Gabriel 2010. Second, it challenges the account given in Hamlaoui 2008, which argues for the non-emergence of clefts in object focusing and the emergence of clefts in contrastive [+/- corrective] contexts. Additionally, while Zubizarreta (1998:146) and Hamlaoui (2008) argue that heavy NP-shift to the rightmost position is acceptable for focused direct objects in ditransitive sentences, no participant resorted to that strategy in the production experiment: Sentences with the word-order S V IO $[DO]_F$ were not produced.

The OT account developed in §5 will account for the fact that objects are generally left in situ, yet acceptably clefted in both neutral and corrective contexts.

5. Accounting for the cleft/canonical alternation: an OT model

Stochastic Optimality Theory (Boersma & Hayes 2001) relies on the idea that the grammar of individual languages derive from a continuous ranking of universal, yet violable constraints on representational well-formedness of output form(s) given an input form. Each constraint is associated with a range of values instead of a fixed point, with the ranges of neighboring constraints overlapping to a lesser or a greater extent. Therefore, the rankings of constraint weights can be perturbed and rearranged, accounting for the variability of the data observed. If two constraints B and C overlap slightly, but are dominated by constraint A, the first ranking A >> B >> C will select one candidate as the optimal form, while the (less common) ranking A >> C >> B will allow another candidate to surface in certain contexts.

The goal of this section is to demonstrate how such a model can account for the data and the variation observed in the production experiment presented in §4. The set of constraints

[7]The literature on the prosody of French is very large (Féry 2001, Delais-Roussarie & Rialland 2007). In this study, I follow the model developed in Delais-Roussarie 2005, where French is analyzed as a rightmost language with intonational and phonological phrases.

proposed in (24) aims to explain the way focus is realized in French by capturing the descriptive generalizations in (22), and by encompassing the special cases summarized in (23):

(22) Descriptive generalizations about French information structure:
   a. Phonology: Constituents carrying main stress are focused; non-accented constituents belong to the background.
   b. Syntax: Focused subjects are clefted; other focus constituents remain in situ.

(23) Special cases to be accounted for:
   a. Bare focused subjects can appear in situ.
   b. Quantified focused subjects can appear in a cleft.
   c. Focused direct objects can appear in a cleft.
   d. Focused indirect objects can appear in a cleft (in contrastive/corrective contexts).

(24) Set of constraints:
   a. Pragmatic constraints
   (i) NoQSubj: No quantified lexical subjects in sentence initial position.
   (ii) Stress-Focus (SF): The element resolving the QUD (a.k.a. the focused element) must receive highest prosodic prominence.
      (ii-a) Stress-Focus-Special ($SF_{special}$): When there is a special pragmatic context, the focus element must occur with the highest syntactic prominence, closest to the left edge of the sentence, in SpecIP position. This special pragmatic context is triggered when there is a mismatch between the speaker and the addressee's belief state.
      (ii-b) Stress-Focus-Informational (SF_{info}): When a focus element does not fully resolve the QUD, the focus must receive prosodic prominence and be realized in situ.
   b. Prosodic constraints
   (iii) Align-Focus-Right (AFR): The right edge of the focused element must be aligned with the right edge of an Intonational Phrase. One violation is inferred for every phonetic element occurring in between the end of the IP.
   c. Syntactic constraints
   (iv) Overt-Subj: Sentences must have an overt subject.
   d. Faithfulness constraints
   (v) Faith-Syn: Do not insert syntactic elements.

The data from the production experiment and the constructed examples discussed in §4 for focused subjects show (i) that, both in neutral and corrective contexts, participants produce the form Cleft$[S]_F$VO (Tableau 1), and (ii) that, in special contexts where something is said about the extension of the predicate and where the speakers' states of beliefs are not aligned, the canonical form $[S]_F$VO occurs (Tableau 2). However, it would be inaccurate to propose a constraint ranking which prevents canonical sentences from ever surfacing in non-special contexts. For example, the ranking needs to allow for focused quantified subjects to be produced sentence-initially in non-special contexts. So, in order to correctly account for the variability observed in the data (clefted focused subjects are strongly preferred but canonical focused subjects are not categorically banned), we must assume that the constraints NoQSubj, SF_{info}, and AFR overlap slightly, indicated by the dashed lines in both tableaux. This overlap in constraints does not interact with the constraint $SF_{special}$, which is ranked higher in order to account for the non-emergence of clefts in special contexts. Tableau 2 shows that candidate (b2) is ruled out because of its fatal violation of the dominating constraint $SF_{special}$, which requires the assignment of the highest syntactic position to focus in special contexts.

QUD: Qui a corrigé les copies?	SF	$SF_{special}$	Overt-Subj	NoQ Subj	SF_{info}	AFR	Faith-Syn
a1. ☞ C'est JEAN qui a corrigé les copies.					*		*
b1. JEAN a corrigé les copies.				*		**	
c1. A corrigé les copies JEAN.			*!				
d1. C'est Jean qui a corrigé les copies.	*!						
e1. Jean a corrigé les copies.	*!						

Tableau 1. Focused subjects realized in a cleft (in non-special contexts)

In Tableau 1, the clefted candidate (a1) violates the low ranked constraint Faith-Syn because a cleft adds syntactic material that is not present in the input (i.e. the corresponding canonical form). Candidate (a1) also violates SF_{info} by not having the focused element realized *in situ*. However, (a1) fulfills AFR: the cleft creates two independent intonational phrases, thus the focused subject occurs at the right edge of the IP. Candidate (1b) counts two violations for the constraint AFR since the focused element is positioned two elements away from the right edge of the IP. It also violates NoQSubj since the focused subject is a heavy, bare noun phrase. However, the symbol (!) signals that this violation is not fatal, indicating that this candidate is (less commonly) selected as the optimal form when the (less common) ranking SF_{info} >> NoQSubj is derived. Candidate (c1) where the focused subject would move to the right edge of the utterance in order to fulfill AFR is prevented by the dominating constraint Overt-Subj, which requires that SpecTP be filled. Finally, forms where there is no prosodic marking on the focused element (c1) and (d1) are ruled out because of their violation of the undominated constraint SF, which requires that a focus element receive highest prosodic prominence.

A similar ranking accounts for the case of focused objects in Tableau 3 and 4 (for non-special and special contexts, respectively). In order to capture the fact that both word orders $SV[O]_F$ and $Cleft[O]_F$ SV optionally occur in the data, both in neutral and corrective contexts, a continuous ranking scale is assumed with the property that SF_{info} and AFR overlap slightly (see Tableau 3). Candidate (a1) violates AFR because the focused element is one element away from the right edge of the IP. Candidate (b1) violates the low ranked constraint Faith-Syn by virtue of adding material that was not present in the input, and violates SF_{info} by virtue of realizing a focused element in a cleft within a non-special context. Candidate (b1) is selected as the output when the ranking AFR >> SF_{info} applies. A candidate such as (c1) is ruled out because it inflicts three violations on the AFR constraint. In special contexts (see Tableau 4), the cleft (a2) is predicted to appear as the sole output because of (b2) fatal violation of the highly ranked constraint $SF_{special}$. A candidate with the form (c2) is ruled out for exactly the same reason.

QUD: Personne ne va corriger les copies?	SF	$SF_{special}$	Overt-Subj	NoQ Subj	SF_{info}	AFR	Faith-Syn
a2. ☞ JEAN va corriger les copies.				*		**	
b2. C'est JEAN qui va corriger les copies.		*!					
c2. Va corriger les copies JEAN.			*!				
d2. C'est Jean qui va corriger les copies.	*!						
e2. Jean va corriger les copies.	*!						

Tableau 2. Focused subjects realized in situ (in special contexts)

QUD: Qu'est-ce que Paul a trouvé sur le coffre?	SF	$SF_{special}$	Overt-Subj	NoQ Subj	SF_{info}	AFR	Faith-Syn
a1. ☞ Paul a trouvé DES CHEVEUX sur le coffre.						*	
b1. C'est DES CHEVEUX que Paul a trouvé sur le coffre.					*		*
c1. DES CHEVEUX Paul a trouvé sur le coffre.						***!	
d1. C'est des cheveux que Paul a trouvé sur le coffre.	*!						*
e1. Paul a trouvé des cheveux sur le coffre.	*!						

Tableau 3. Focused direct objects realized in situ (in non-special contexts)

QUD: C'est mon arme, mais pourquoi vous me soupçonnez?	SF	$SF_{special}$	Overt-Subj	NoQ Subj	SF_{info}	AFR	Faith-Syn
a2. ☞ C'est VOS EMPREINTES qu'on a trouvé sur l'arme.							*
b2. On a trouvé VOS EMPREINTES sur l'arme.		*!				*	
c2. VOS EMPREINTES, on a trouvé sur l'arme.		*!				***	
d2. C'est vos empreintes qu'on a trouvé sur l'arme.	*!						
e2. On a trouvé vos empreintes sur l'arme.	*!						

Tableau 4. Focused direct objects realized in a cleft (in special contexts)

Finally, the ranking proposed, with two pairs of overlapping constraints (NoQSubj/SF_{info} and SF_{info}/AFR), also accounts for the distribution found in the data for focused indirect objects (see Tableau 5). Candidate (a1) is the most common output form since it does not violate any constraint. In Tableau 6, on the other hand, the indirect object is predicted to occur in a cleft sentence since leaving it *in situ* violates the higher ranked constraint $SF_{special}$.

QUD: Qu'est-ce que Paul a trouvé sur le coffre?	SF	$SF_{special}$	Overt-Subj	NoQ Subj	SF_{info}	AFR	Faith-Syn
a1. ☞ Paul a trouvé des empreintes SUR LE COFFRE.							
b1. C'est SUR LE COFFRE que Paul a trouvé des empreintes.					*!		*
c1. SUR LE COFFRE, Paul a trouvé des empreintes.						***!	
d1. C'est des empreintes que Paul a trouvé sur le coffre.	*!						*
e1. Paul a trouvé des empreintes sur le coffre.	*!						

Tableau 5. Tableau for focused indirect objects realized *in situ* (in non-special contexts)

QUD: Ce sont mes empreintes, mais pourquoi vous me soupçonnez?	SF	$SF_{special}$	Overt-Subj	NoQ Subj	SF_{info}	AFR	Faith-Syn
a2. ☞ C'est SUR L'ARME qu'on a trouvé vos empreintes.							*
b2. On a trouvé vos empreintes SUR L'ARME.		*!					*
c2. SUR L'ARME, on a trouvé vos empreintes.						***!	
d2. C'est sur l'arme qu'on a trouvé vos empreintes.	*!						*
e2. On a trouvé vos empreintes sur l'arme.	*!						

Tableau 6. Tableau for focused indirect objects realized in a cleft (in special contexts)

6. Conclusion

In this paper, I have investigated two aspects of the *c'est*-cleft: its meaning and its use. The data from the two experiments presented indicate that (i) the French *c'est*-cleft does not semantically contribute exhaustivity to the sentence's meaning and (ii) the alternation cleft/canonical is more complex than previously considered. The exhaustivity of the cleft is attributed to its non-at-issue meaning. I have followed a prosodic and pragmatic approach (*à la* Hamlaoui 2008) of the canonical/cleft non-random alternation, arguing that the constraint ranking SF >> $SF_{special}$ >> Overt-Subj >> NoQSubj, SF_{info}, AFR >> Faith-Syn, accounts for the realization of focus in French in various cases and interpretations.

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